ie VII.
Number 12.

DECEMBER, 1894.

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20 Cents per Copy.

TEXTILE WORLD

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Buyers' Index, Page 15

January issue of the Textile World will contain, in addition to the Annual Report of New Mill Construction for 1894, a Directory of the Manufacturing Clothiers, Suit and Cloak Manufacturers, Dry Goods Jobbers and Large Retail Houses in the principal cities. Individual Buyers' Names and Kind of Goods Bought will be given for each concern.

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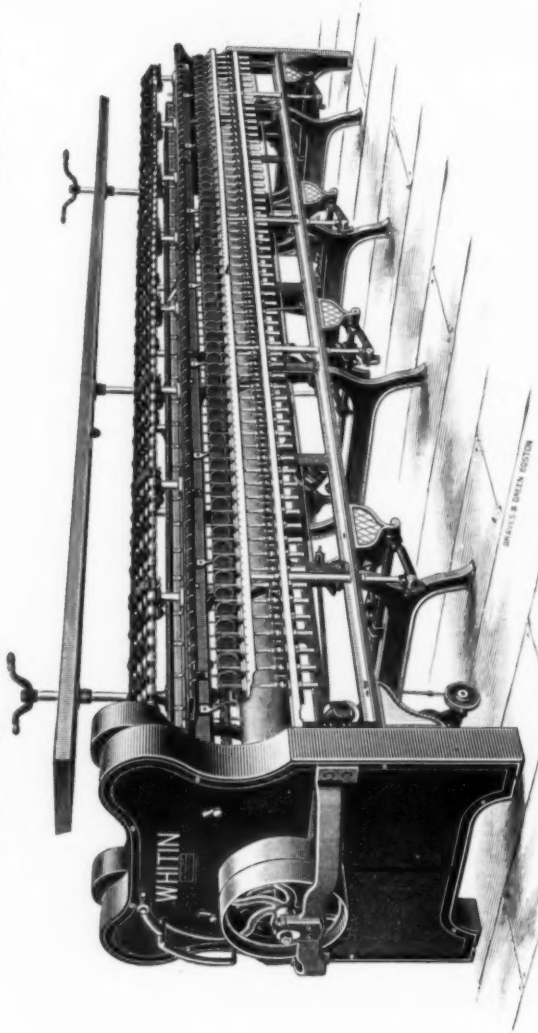

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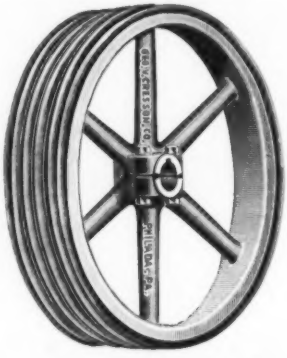

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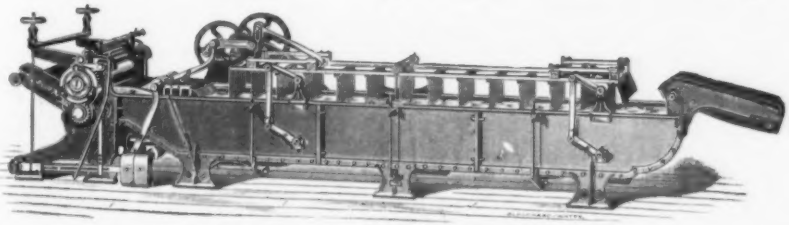

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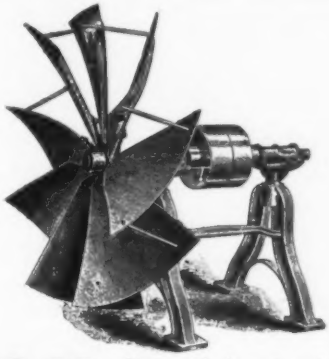

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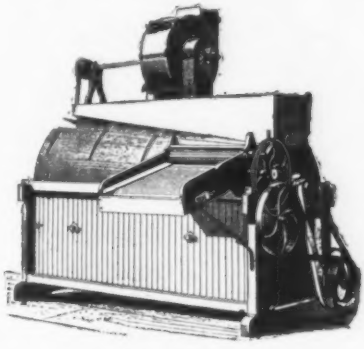

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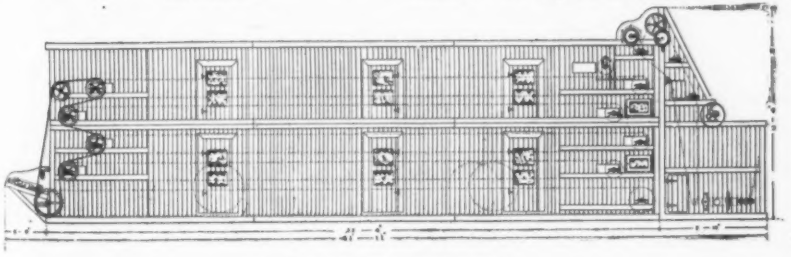

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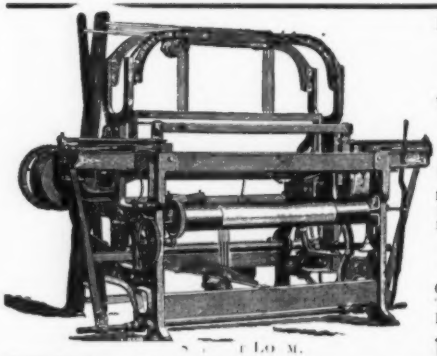

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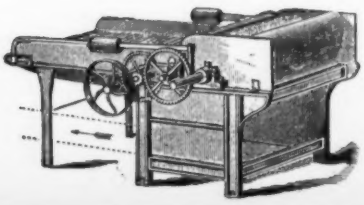

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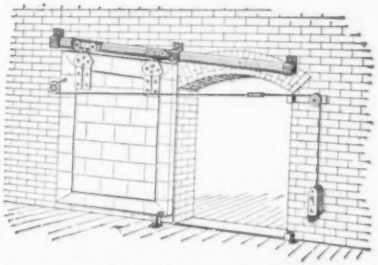

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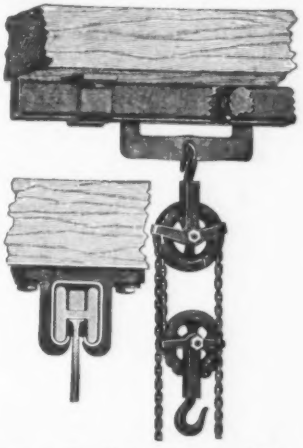

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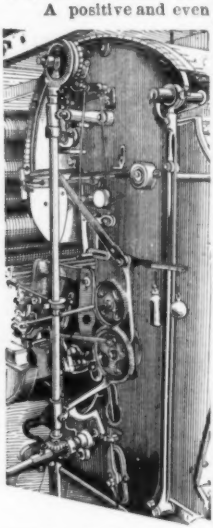
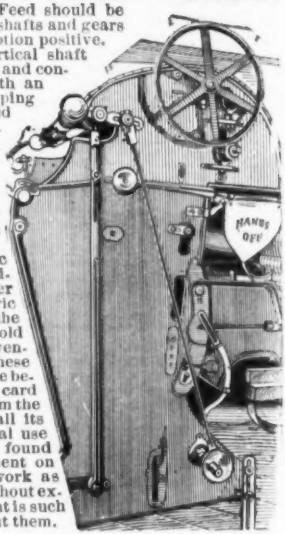


The comb is driven by an eccentric on main shaft of feed, making it positive and without noise. The patter motion is also driven by an eccentric on the vertical shaft, which gives the patter double the strokes of the old motion and tends to lay the stock evener and better on the feed apron. These motions altogether make up what we believe to be a perfect and positive card feed. This attachment is made from the best of stock and is substantial in all its parts, having been put in practical use and strengthening wherever it was found weak. We will send this Attachment on approval, and if it will not do the work as represented, it can be returned without expense. The price of this Attachment is such that no card room should be without them.



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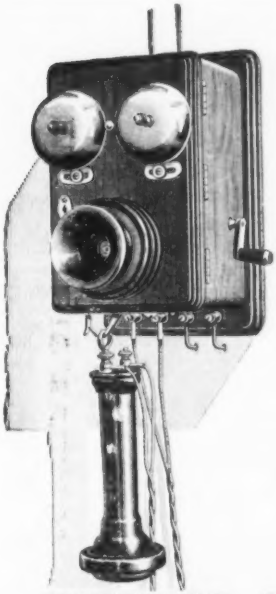

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760 **Superintendent or Asst Superintendent** and designer, has worked on fancy cassimers, cheviots, and meltons. Age 31 years, married. Salary moderate.

654 **Cloakings, Cassimeres,** dress goods, flannels. Graduated from the weaving department; age 32, not married. Moderate salary.

803 **Is in the first ranks,** very able, good references; experience on all kinds of mens wear and dress goods; 33 years old and married.

816 **A first class superintendent,** now employed, desires to change. Very extended acquaintance with all classes of worsted and woolen cloths. Invites correspondence.

942 **Is Expert on Woolens, Worsteds** and dress goods. Desires a position as superintendent, or assistant superintendent and designer, or designer alone. Has worked in best New England mills. Salary $2000 per annum.

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COTTON SUPERINTENDENTS.

568 **Has had extended experience** in best New England mills; either as superintendent or carding overseer; very best references. Shirtings, sheetings, twills, white and colored.

911 **Colored cotton, worsteds, and** cassimeres, 11 years superintendent in 3 different mills. 44 years of age, married.

822 **Cotton flannels, all grades.** Desires position as superintendent, or assistant superintendent. Age 33; married.

996 **Cotton Mill Superintendent,** has had sixteen years' experience on all classes of yarns, print cloth and sheetings. Has held responsible positions, and gives first-class references as to ability and character. Age 45 single.

679 **Ginghams or white** work in New England mill. Age 36, married. High reputation won by unusually successful career. Nothing less than $2500.

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1014 **Designer, asst. supt., or supt.,** in medium or large mill. Has worked on cassimeres, unions, overcoatings, worsteds, solid, and cotton warp, and cotton filled worsteds. Excellent references.

755 **Young and Ambitious,** has worked on fancy cassimeres and cheviots, but principally worsteds. Would take a position as designer.

690 **Designer.** Fancy worsteds, cassimeres. Would also like the position of assistant superintendent. Refers to any firm ever worked for. Salary to suit the times.

WOOLEN WEAVERS.

920 **Worked in some of the best** N. E. mills. Dress goods, unions, cassimeres, worsteds and cheviots. 28, and married. $3.00 or so.

702 **Reliable overseer** of weaving. Son is loom fixer. Worsteds, shawls, flannels, all kinds of woolen goods, ginghams. Good references. Age 50, married.

1020 **Woolen weaver, first class man.** Experienced on cassimeres, dress goods, shawls, flannels, etc. Good references.

1004 **Now in the West,** good weaver. Experienced also in the best Eastern mills. Has worked on cassimeres, meltons, cheviots, beavers, cloakings, worsteds. Is 38 and married.

104 **American.** Practical and hard working. Good knowledge of designing, gets along well with help, understands looms thoroughly. Fancy cassimeres, shawls, dress goods.

614 **Boss weaver and designer** has had a wide experience on cassimeres, dress goods, worsteds, casket cloths, beavers, flannels, blankets, doeskins, satinets and jeans. 45 and married. Salary $3 or so.

741 **Woolen and Worsted Weaver** on fancy worsted, cassimere and dress goods. Good references.

930 **Asst. Supt. overseer of weaving** and designing. Has worked on all kinds of men's wear, dress goods, kerseys beavers, etc. Age 43; married.

838 **Pattern Weaver.** Woolen, worsted and silk dress goods, always on Knowles looms.

COTTON SPINNERS.

555 **Ring spinning,** spooling, warping twisting, reeling, winding and quilling. Age 38, married.

725 **Ring spinning overseer** with experience on a wide range of goods. Age 28 and married. Salary moderate.

964 **Cotton spinner,** hosiery, yarns, as well as all others. Overseer eight years; preaviously second hand twelve years. Used to rapid changing over on either mules or frames. Would go on road.

735 **Mule or frames.** Age 43, married. 8 years in firstclass Rhode Island corporations. Can take position at once at fair salary.

724 **Ring Spinner** with good experience in mills of high standing. Well recommended. Married, 31 years of age. Fair salary.

805 **Spinning, spooling, slashing,** etc. Is young and capable, comes from a race of first class cotton men. Would also take a position as superintendent of yarn mill; salary moderate.

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831 **Experienced on woolen dress** goods and fancy cassimeres. Age 24. Salary $2.50 per day, or so.

696 **Wool and Worsted**, piece dyes, and cotton yarns. Age 25, single. $3.00. Excellent references.

804 **All kinds of fancy woolen dyeing**, woolen and worsted skein, and piece; high or low grades, and raw stock.

904 **Worsteds, Meltons**, mixtures, and cassimeres. Is a good stayer. Married; with a family; age 44. Wages $2.50 or $3.00.

1013 **Dyer on wool yarn and piece.** Is 43 and married. Has had 25 years experience in some of the principal woolen mills in Germany.

806 **Has colored hosiery**, woolen yarn, piece goods, slubbing, raw stock and run indigo vats with success. Salary moderate.

818 **All wool and merino hosiery**, carpet yarns, raw wool, rags, shoddy, and mixed goods. Age 30; married. Salary $3.00 or so.

900 **Cotton**: long and short skein, hosiery piece dyeing, and raw stock; has worked in good mills. 33 years old; married $3.50 or so per day.

987 **Dyer**, foreman or second hand would like position in a knitting factory or flannel mill. 25 years' experience in English and American mills. Age 43. $2 per day for steady job.

798 **Now employed**, giving good satisfaction; Age 26, married, experienced on wool, woolen and worsted yarns and piece goods, cotton and cotton yarns.

1030 **Woolen Carder.** A first class man with good references and wide experience desires position as over-seer of woolen carding. Has worked on from fine wool to low shoddy. Age 27. Married and can take position at once. A trial will show that he is the right man.

765 **All kinds of cotton goods** either yarns or piece, can take a position at short notice. A good overseer, age 50, married.

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787 **Capable man.** Carder. 42 years old, married. Good experience and well recommended. Has worked on beavers, cassimeres, dress goods, all kinds of mixes and hosiery.

178 **Is the man** conservative mills are looking for; 38 with a family, desires pleasant town to settle down in. Excellent carder on wool or cotton and shoddy mixed dress goods.

913 **First class woolen carder** hosiery, dress goods, overcoatings, cloakings, cassimeres, (all wool and union), kerseys, meltons, etc. 35, married. $3.00 and up.

261 **Principally Low Stock.** Age 33, married. $2.75 per day. Does not change frequently.

707 **Fine Flannel and Dress Goods** stock understood. A capable man, 35 years old, single. $3.00.

1031 **Dyer**, who has worked on raw stock, wool and hoddy and woolen yarns of all grades from fine worsteds down to low carpet yarns, piece goods, heavy woolens, desires position. Age 40, married. Has worked with one mill eight years and can give good references.

606 **Good Carder wants position as** Overseer. Has worked on satinets, cassimeres, knitting yarns and dress goods. Will go anywhere, and will consider any reasonable offer. Age 31. Married.

WOOLEN SPINNERS.

212 **First Class Overseer**, has worked on all classes of goods and in some of the most successful mills. Age 30; married.

980 **Wide experience** as boss spinner on variety of stocks: Johnson & Bassett, Davis & Furber, Woonsocket Mule, and the Wright Spinner. 45 years old, married; best of references. Salary moderate.

1017 **Boss spinner** on stock for cassimeres, beavers, cheviots, flannels and woolen shirting. Age 29, married. Wages $2.50.

941 **A Very Efficient Man.** Used to most every class of woolen goods; age 28, married. Salary moderate.

932 **Carder and spinner** in 3 to 5 set mill. Has worked on fine dress goods and cassimere stock. Age 29; married. Wages $3.00, or so

959 **Overseer of worsted Spinning.** Six years' experience. Has worked on all numbers. 26 years old, married. Salary $2.50 to $3 per day.

COTTON CARDERS.

645 **Coarse and fine**, colored and white. Brought up in good mills. Thoroughly understands all makes of machinery in his department.

826 **Has worked in best New England** mills; as second hand, and capable of taking an overseership in medium or small mill. Age 31.

922 **All kinds white or colored** from 1 2 to 14 hank. First-rate experience and references. Age 44, married. Salary $3.50.

502 **Is an excellent overseer** on combed, carded, or colored stock; was in charge of a few of the best rooms in the country. 46 years of age, salary very moderate.

978 **Overseer of Carding**, coarse and fine yarns and combings. Will work for $2.50 and upwards. 46 years old, married.

910 **Is a good carder** on plain, colored and fancy white stock. Age 41. $2.50 and up.

WOOLEN FINISHERS.

193 **Woolen Finisher of first rank**, all classes of woolens from loom to case. Age 44; married.

828 **Desires a position in finishing** room; as second hand preferred. Is bright, intelligent, and capable of an overseer's position, acquainted with flannels, fancy suitings, cassimeres, overcoatings, carriage cloth, fancy mixed beavers. Age 23.

832 **A young finisher** desires a position as overseer. Has worked on all wool cassimeres, suitings, dress goods and cloakings, worsted suitings, and cotton and worsteds, union cassimeres and low grade shoddy. Age 28; married. Salary $3.00 or so.

905 **Chinchillas.** Wants position in charge of finishing. Has knowledge of about 150 styles in this line. Age 32; married. Pay moderate.

993 **Superintendent and designer on** cloth, wide experience, has worked on fine and coarse woolens and worsteds, kerseys, cheviots, cassimeres and sail duck; good references, 28 years old and married. Salary $1500 per year or more according to position.

843 **Boss Finisher** of 13 years' experience on all kinds of cut and fashioned shirts and drawers. Understands all kinds of machines used in same. 41 years old, married. Salary $3.00 per day.

1007 **Dress goods and fine meltons** prefered, but has worked on all kinds woolens. N. Y. or N. E. states. Age 22, salary moderate

358 **Heavy overcoatings,** beavers, chinchillas. Never held overseer's position, but second hand in fine mills. Would start low.

783 **Competent overseer** of wet and dry finishing. 46 years old, married. Has first class recommendations. Many years experience on all classes of goods. Wishes to remain in New England. Fair salary.

734 **Woolen and worsted superinten** and boss finisher. Has worked on broadcloth, flannels, carriage cloths, worsted coatings, dress goods, linings and cotton warps. Has had 20 years experience on mixes in mungo, shoddy, noils and cotton.

COTTON WEAVERS.

837 **Sheetings, twills, satteens,** fancy goods, and leno. Age 34, married.

949 **Overseer of Weaving,** or assistant superintendent. Experienced on sail and fancy duck, sheeting, shirting, drills, cottonades, etc. Will go anywhere. 50 years old, married. Wages $3 to $4 according to size of room.

429 **Has worked on fine goods** of all kinds as overseer. Salary according to position. Age 28.

176 **South preferred.** Understands fixing a loom, and not afraid to do it. Gets on well with Southern help

KNITTERS.

Boss Knitter. Has had experience on both plain and fancy knitting. Plush work a specialty. Has held present position for eight years, and is desirous of making a change, for good reasons. Address "P. 129," care TEXTILE WORLD.

673 **Superintendent of woolen hosiery.** Practical knitter and dyer. Large mill wanted. $4.00 per day.

923 **Knitting mill his forte** either carding or spinning department or both, or could manage a mill; 28 years old, married. Wages $3.00

773 **An experience** on all kinds of underwear and plush. A good man, 45 years old and married. Overseer's position anywhere except the South.

772 **Boss knitter,** has worked as overseer in northern New York mills, experiance on wool and cotton, heavy and light underwear. 31 years old, married. Pay very moderate.

917 **Full fashioned underwear** cottons patent power frames, and hand frames.

815 **Superintendent** rib, circular, or fashioned. Underwear and hosiery, cotton, merino and worsted. A good man. Age 45,

915 **Wants position as boss knitter** or superintendent in hosiery mill. 21 years old, unmarried, salary $3.00 and up.

MISCELLANEOUS.

914 **Mechanical engineer and cotton** mill superintendent, English, of high character and ability, wants a position in the South as superintendent, or would undertake the erection and starting up of cotton mills.

840 **Beaming or Charge of Beaming.** Has worked on ginghams, tickings, shirtings and dress goods. Age 29; married; salary as beamer $2.50; in charge $2.75.

927 **Boss Dresser Tender.** Five years overseer on stock for cassimere, flannels, worsteds, kerseys, beavers, dress goods and all other kinds of woolens.

928 **Foreman dyer and finisher** of knit goods. Very extended experience on all kinds of cotton, wool, and mixed goods, in hosiery underwear, and overshirts.

972 **Situation wanted** by a man capable of taking charge of dressing in a woolen mill, or would run a frame. Has had six years experience. 23 years old, married.

998 **First-Class Sewing Machine Fixer** and Finisher in knitting mill. Has worked on all kinds of shirts and drawers. Furnishes best of references. 45 years old, married. Wages $2.50 to $3.50 per day.

533 **Situation wanted** as superintendent in flax, hemp or jute mill. Can make all kinds of yarn, threads, sail twines. Best of references as to character and ability. Twenty years experience in the same line, both wet and dry spinning

800 **Office or cloth room** thoroughly understands the cotton mill from this end. Desires pay master's or some like position; 26 years old; married, salary moderate.

771 **An excellent Supt.** for any woolen mill needing a man with his experience on cassimeres and dress goods. A good manager of help. Salary moderate.

760 **Desires advancement** in responsibility. Superintendent or Asst. superintendent and designer. Salary moderate; experience on fancy cassimers, cheviots and meltons. 31 and married

809 **American, 24 years of age,** trained in foreign technical schools and mills; is practical in all branches of worsted yarn manufacture and is a good machinist. Desires position as overseer, assistant superintendent or superintendent.

Night Watchman. American, 41 years old, large and strong, desires permanent position in a large mill. Will go anywhere, but prefers New England (Massachusetts or Connecticut). Has had experience in care of boilers in large woolen mill, from which he has first-class references. Will give good service and expects good wages. Address P 128, care of Textile World.

1008 **Wants boss job in flannel mill.** Northern New England preferred, also a good man for dresser or fixer, has worked on flannels, serges, cheviots, fancy dress goods. Is 34, married.

1005 **Boss wool sorter, worsted** prefered. Has worked in best New England mills. Can take position at once.

BUYERS' INDEX.

Advertisers whose names do not appear under desired he ıdings will please notify the publishers. Such omissions are accidental, not intentional.

Alphabetical Index to Advertisements follows this Classified List.

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Attachments for Card Feeders.
Geb Attachment Co, Franklin, Mass.

Balling Machine.
Torrance Mfg. Co, 18 Davis St, E. Newark, N. J.

Baskets, Raw Hide, etc.
Barlow, John W, Lawrence, Mass.

Belting.
Alexander Bros., 410 No. 3d St., Phila., Pa.
Danforth Belting Co, 221 Chestnut St, Phila, Pa.
Fell, Geo. & Son, Bolton, England.
Rhoads, J E, & Sons, 239 Market St, Phila, Pa.
See also Mill Supplies.

Belt Dressing.
Alexander Bros, 410 No. 3d St, Phila, Pa.
Danforth Belting Co, 221 Chestnut St, Philadel hia, Pa.
Rhoads, J. E, & Sons, 239 Market St, Philadelphia, Pa.

Bobbins, Spools, Shuttles, Etc.
Arnold, O. S, Killingly, Ct.
Baldwin, James, Co, Manchester, N. H.
Union Bobbin Works, 116 Bedford St, Boston, Mass.
Vermont Spool & Bobbin Co, Burlington, Vt.

Boiler Compounds.
Imperial Chemical Co, 432 Market St, Phila, Pa.
Lord, G. W, 316 Union St, Phila, Pa.

Boxes, Paper.
Schoettle, F, 312 Branch St, Phila, Pa.

Boxes, Wooden.
Pearson, J. T, Kensington, Pa.

Burr Pickers.
Atlas Mfg. Co, Newark, N. J.
Sargent's, C. G, Sons, Graniteville, Mass.

Card Clothing.
American Card Clothing Co, Worcester, Mass.
Radey, Cunningham & Co, Phila, Pa.

Card Cutters.
Hand, Fredk, & Co, 159 Van Houten St, Paterson, N. J.

Card Feeds.
Atlas Mfg. Co, Newark, N. J.
Harwood, Geo. S, & Son, Boston, Mass.

Calico Printers' Machinery and Supplies.
Hope, John, & Sons, Eng. Mfg. Co, Elmwood, Providence, R. I.
New Bedford Copper Co, New Bedford, Mass.
See also Dyeing, Bleaching Machinery, etc.

Carpet Machinery.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Crompton Loom Works, Worcester, Mass.
Furbush, M. A, & Son, Machine Co, Phila, Pa.

Chemical Laboratory.
Genth, F. A.

Combs, Hackles, Pins, Etc.
Townsend, Thos, Manchester, Conn.

Copper Print Rollers.
New Bedford Copper Co, New Bedford, Mass.

Copper Work for Dyers.
Brabender, Chas, & Son, Paterson, N. J.
Oat, Jos. & Sons, 232 Quarry St, Phila, Pa.

Cotton.
Barry, Thayer & Co, 32 India St, Boston, Mass.
Blaisdell, S, Jr, Co, Chicopee, Mass.
Capelle, Herman, cor. Leonard St. and W. Broadway, N. Y.

Cotton Machinery.
Atherton Machine Co, Lowell, Mass.
Altemus, W. W, & Son, 2816 N. 4th St, Phila, Pa.
Draper, Geo, & Sons, Hopedale, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.
Kilburn, Lincoln & Co, Fall River, Mass.
McKerrow, H. G, & Co, 620 Atlantic Ave, Boston, Mass.
Mason Machine Wks, Taunton, Mass.
Pettee Machine Wks, Newton Upper Falls, Mass.
Providence Machine Co, Providence, R. I.
Whitin Machine Wks, Whitinsville, Mass.

Cotton Openers and Lappers.
Atherton Machine Co, Lowell, Mass.
Howard & Bullough American Machine Co, 281 Congress St, Boston, Mass.

Damper Regulators.
D'Este & Seeley Co. (Curtis), 29½ Haverhill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Designers.
Designer, Box 222, Brooklyn, N. Y.

Hand, Fredk, & Co, 159 Van Houten St, Paterson, N. J.
Woolens, Box 719, Middleboro, Mass.

Dryers.
Philadelphia Textile Machinery Co, Philadelphia, Pa.

Dusters.
See Wool and Waste Dusters.

Dye House Clogs.
Wildman, Jos, 1919 N. Front St, Phila, Pa.

Dyeing, Bleaching and Finishing.
Providence Dye Works, Kensington, Pa.
Perseverance Dyeing Co, Woonsocket, R. I.
Home Bleach & Dye Works, Pawtucket and Valley Falls, R. I.
Greene & Daniels Mfg. Co, Pawtucket, R. I.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Napping Machine Co, Williamstown, Mass.
Butterworth, H. W, & Sons Co, Phila, Pa.
Delahunty Dyeing Machine Co, 152 N. Front St, Phila Pa.
Dill Spool Support Co, Hancock St. and Lehigh Ave, Phila, Pa.
Granger Foundry & Machine Co, Providence, R. I.
Lincoln & Co, 54 Arch St, Hartford, Ct.
Maertens, E, New Industrial Trust Bldg, Providence, R. I.
Parks & Woolson Machine Co, Springfield, Vt.
Phenix Iron Foundry, Providence, R. I.
Sargent's, C. G, Sons, Graniteville, Mass.

Dyestuffs and Chemicals.
Anchor Color Mfg. Co, 464 Cherry St, N. Y.
Atteaux, F. E, & Co, 172 Purchase St, Boston, Mass.
Avery Lactart Co, 169 Devonshire St, Boston, Mass.
Beach & Co, Hartford, Ct.
Bischoff, & Co, 80 Front St, N. Y.
Browning & Bros, 42 N. Front St, Phila, Pa.
Bullock & Crenshaw, 528 Arch St, Phila, Pa.
Cottonade Chemical Co, Mill and Hancock Sts, Germantown, Phila, Pa.
Coyne, Geo. S, 116 N. Front St, Phila, Pa.
Gould Commercial Co, 35 Hartford St, Boston, Mass.
Hanna, W. W. 52 N. Front St, Phila, Pa.
Harway Dyewood & Extract Mfg. Co, 184 Front St, N. Y.
Hill, Edward's Son & Co, 25 Cedar St, N. Y.
Holliday, Read & Sons, Ltd, 7 Platt St, N. Y.
Horsfall, Jonathan, 216 Chestnut St, Phila, Pa.
Howe & French, 107 Milk St, Boston, Mass.
Innis & Co, 120 William St, N. Y.
Jaeck Bros, J, 67 Wythe Ave, Brooklyn, N. Y.
Johnson, Chas. A, & Co, 14 Dey St, N. Y.
Karcher, Ph. H, & Co, 14 Cedar St, N. Y.
Keller, John J, & Co, 104 Murray St, N. Y.
Klipstein, A, & Co, 122 Pearl St, N. Y.
Matheson, W. J, & Co, 178 Front St, N. Y.
Mende, A. P. Co, 14 Water St, N. Y.
Merrimack Chemical Co, 13 Pearl St, Boston, Mass.
Nashoba Company, Ayer, Mass.
Naumkeag Dye Co, Salem, Mass.
N. Y. & Boston Dyewood Co, N. Y. City.
Phillips, Moro Chemical Co, 131 S. 3d St, Phila., Pa.
Pickhardt, Wm, & Kuttroff, N. Y, & Boston.
Schultze Berge & Koechl, 79 Murray St, N. Y.
Schlbach, E, & Co, 77 William St, N. Y.
Sharpless, John M, & Co, 22 N. Front St, Phila, Pa.
Slack, Wm E, 96 Maiden Lane, N. Y.
Stamford Mfg. Co, 157 Maiden Lane, N. Y.
Welch, Holme & Clark Co, 383 West St, N. Y

Dyers and Finishers.
Boston Finishing Works, Williamstown Mass.
Harras, E, 666 E. 152 St, N. Y.
Home Bleach & Dye Works, Pawtucket, R. I.
Keller & Cooper, 110 Putnam St, Phila, Pa.
Mason, The R. D. Co, Pawtucket, R. I.
Oakland Dye Works, 913 W. York St, Phila, Pa.
Pawtucket Dyeing & Bleaching Co, Pawtucket, R. I.
Perseverance Dyeing Co, Woonsocket, R. I.
Providence Dye Wks, Kensington, Pa.

Dye Sticks.
Haedrich, E. M, 311½ Walnut St, Phila, Pa.

Electrical Apparatus.
Davidson Ventilating Fan Co, cor. Milk and Oliver Sts Boston, Mass.

Elevators.
Cohoes Foundry & Machine Co, Cohoes, N.Y.
Graves Elevator Co, Rochester, N. Y.
Penn Elevator Engineering Co, 516 Commerce St, Phila, Pa.
Salem Foundry & Machine Shop, Salem, Mass.

Engineers, Electrical.
Davidson Ventilating Fan Co, cor. Milk and Oliver Sts, Boston, Mass.

Engineers, Mechanical.
Ferguson, John W, Paterson, N. J.

Engravers for Fabric Printers.
Hope, John & Sons, Eng. &, Mfg. Co, Elmwood, Providence, R. I.

Engraving on Wood.
Blanchard & Watts Eng. Co, 36 Columbus Ave, Boston.
Russell, Albert C, 38 Pearl St, Boston, Mass.
Ryder Co, J. J, 210 Westminster St, Providence, R. I.

Express Money Orders and Travelers' Cheques
American Express Co, offices in every city

Factory Sites.
Dolge, Alfred, Dolgeville, N. Y.
Bartholomew, J. B. Topeka, Kas.
Harmon, J. W, Oldtown, Me.

Feeders.
Atlas Mfg. Co, Newark, N. J.
Harwood, Geo. S, & Son, 7 Water St, Boston, Mass.

Feed Water Heaters.
Hine & Robertson Co, 67 Courtlandt St, N. Y.
National Pipe Bending Co, 68 River St, New Haven, Conn.
Whitlock Coil Pipe Co, 67 South St, Elmwood, Conn.

Feed Water Pumps.
Phœnix Iron Foundry, Providence, R. I.

Filters.
New York Filter Co, 145 Broadway, N. Y.

Finishing Machinery.
See Dyeing, Drying, Bleaching and Finishing.

Fire Doors.
Coburn Trolley Track Mfg. Co, Holyoke, Mass.

Fire Hose.
Rhoads, J. E, & Son, 239 Market St, Philadelphia, Pa.

Fire Pails.
Lincoln, Levi, Worcester, Mass.

Fluted Rolls.
Cohoes Foundry & Machine Co, Cohoes, N.Y,
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Flier Pressers.
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Gear Cutting Machine.
Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E, Co, New London, Conn.

Heating.
See Ventilating.

Hosiery Boards.
Pearson, J. T, Kensington, Pa.

Hydro Extractors.
Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Index.
Burr Index Co, 336 Asylum St, Hartford, Conn.

Indicators for Engines.
Hine & Robertson Co, 67 Courtlandt St, N. Y.

Inks.
New England Ink Co, 233 Atlantic Ave, Boston, Mass.

Jute Goods, Burlaps and Jute Yarns.
Wilmington Mills Mfg. Co, Wilmington, Del.

Knit Goods Brushers.
Franz & Pope Knitting Machine Co, Bucyrus, O.
Jones, Lewis, Bristol, Pa.

Knit Goods Edgings, Trimmings, etc.
Cheney Bros, Silk Goods, 479 Broome St, N. Y.
Friedberger, S, Edgings, Germantown, Phila, Pa.
Hepner & Howitz, Lacings, 84 Leonard St, N. Y.

Knit Goods Finishing Machines, Crochet, Etc.
Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa.
Union Special Sewing Machine Co, 47 Leonard St, N. Y.
Singer Mfg. Co, offices in every city.
Merrow Machine Co, Hartford, Conn.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.

Knit Goods Ravellers.
Traver, A. L. Mellenville, N. Y.

Knitting Machine Cylinders.
Ashman, Stephen A, 3 Fetter Lane, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Stanton & Lewis, 318 Branch St, Phila, Pa.

Knitting Machinery.
Branson Machine Co, 506 St. John St, Phila, Pa.
Brinton, Denny & Co, 213 Race St, Phila, Pa.
Campbell & Clute, Cohoes, N. Y.
Champion Sewing Machine Co, 1819 N Fifth St, Phila, Pa.
Crane Mfg. Co, Lakeport, N. H.
Franz & Pope Knitting Machine Co, Bucyrus, O.
Hepworth & Co, Lehigh Ave. and Mascher St, Phila, Pa.
Jones, Lewis, Bristol, Pa.
Keystone Knitting Machine Mfg. Co, 1716 No. Fifth St, Phila, Pa.
Lamb Mfg. Co, Chicopee Falls, Mass.
Leighton Machine Co, Manchester, N. H.
National Automatic Knitter Co, 728 Cherry St, Phila, Pa.
Novelty Knitting Machine Co, Lowell, Ms.
Nye & Tredick, 606 Arch St, Phila, Pa.
Paxton & O'Neill, 129 Bread St, Phila, Pa.
Pepper Mfg. Co, Lakeport, N. H.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.
Stanford, W, & Co, Little Falls, N. Y.
Taylor, James, 835 Arch St, Phila, Pa.

Knitting Needles.
Ames, David J, Philmont, N. Y.
Corey, Wm, Co, Manchester, N. H.
Ives, Loyal T, New Brunswick, N. J.
Lydall, H, & Foulds, Manchester, N. H.
Star Needle Co, New Britain, Conn.
Treat, Orion, Manchester Green, Conn.
Wardwell Needle Co, Lakeport, N. H.

Laboratory Outfits.
Bullock & Crenshaw, 528 Arch St, Phila, Pa.
Sharpless Bros., 8th and Chestnut Sts, Phila, Pa.

Lace Leather.
Rhoads, J. E, & Son, 239 Market St, Phila, Pa.

Lingoes.
Miller Mfg. Co, 16 Indiana Ave, Phila, Pa

Looms.
Crompton Loom Works, Worcester, Mass.
Draper, Geo. & Sons, Hopedale, Mass.
Furbush, M. A, & Son Co, Phila, Pa.
Gilbert Loom Co, Worcester, Mass.
Kilburn, Lincoln & Co, Fall River, Mass.
Mason Machine Works, Taunton, Mass.
Whitin Machine Works, Whitinsville, Ms

Loom Picker Manufacturers
Barlow, John W, Spicket Mill, Lawrence Mass.

Lubricators.
Dixon, Jos, Crucible Co, Jersey City, N. J.
Faul, W. J, 120 Liberty St, N. Y.

Lumpers.
Gerry, George, & Son, Athol, Mass.

Machinery Dealers.
Clark, Jeremiah, Lowell, Mass.
Schofield, Geo. L, 123 N. Front St, Phila, Pa.

Machinery Wanted.
Manufacturer, care Textile World

Machinists' Tools.
Blaisdell, P, & Co, Worcester, Mass.
Whiton, The D. E. Co, New London, Conn.

Measuring and Folding Machines.
Elliott & Hall, 514 Harmon St, Worcester, Mass.

Mails.
Walder, J, Paterson, N. J.

Mill Builders and Engineers.
Ferguson, John W, Paterson, N. J.

Mills and Mill Sites for Sale.
Factory Sites, Alfred Dolge, Dolgeville, N. Y.; J. W. Harmon, Old Town, Me.; J. B. Bartholomew, Topeka, Kan.

Mill Supplies.
American Supply Co, Providence, R. I.
Buckley's, Benj. Son, Gun Mill, Paterson, N. J.
Covel & Osborn, Fall River, Mass.
Hill, Jas, Mfg. Co. Providence, R. I.
Miller Mfg. Co, 16 Indiana Ave, Phila, Pa.
Thurston, A. G, & Son, Fall River, Mass.

Napping Machines.
American Napping Machine Co, Williamstown, Mass.
Parks & Woolson Machine Co, Springfield, Vt.

Oilers.
Williams, H. A, Mfg. Co, 336 Congress St, Boston.

Oil Injectors.
Cornell, F. H. & Co, 461 West 14th St, N. Y.

Oilless Bearings.
N. American Metalline Co, 62 W. Ave. and 3rd St, Long Island City, N. Y.

Pantagraphs, Engraving Machinery, Etc.
Hope, John, & Sons Eng. & Mfg. Co, Elmwood, Pronidence, R. I.

Paper Tubes for Cone Winders.
McCausland, J, 33 Canal St, Providence, R.I.

Patent Solicitors.
Crosby & Gregory, 34 School St, Boston, Mass.
Crossley, Arthur W, Exchange Bldg, Boston, Mass.

Miller, Jos. A., & Co, Butler Exchange, Providence, R. I.
Planta E, 27 School St, Boston, Mass.
Wright, Brown & Quinby, Exchange Bldg, Boston, Mass.

Penstocks.
Dalrymple, Geo, Fair Haven, Vt.

Pneumatic Conveying.
See Ventilating.

Power Transmitting Machinery.
Cresson, Geo. V, Co, 1800 Allegheny Ave, Phila, Pa.
Kilburn, Lincoln & Co, Fall River, Mass.
McKerrow, H. G, & Co, 620 Atlantic Ave, Boston, Mass.

Presses, Knit Goods.
Crawford J. J, & Son, Nashua, N. H.
Taylor, James, 835 Arch St, Phila, Pa.

Pressure Regulators for Steam and Water.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass.
Locke Regulator Co, Salem Mass.

Printed Labels.
Lynch, Robt. E, Diamond and Howard Sts, Phila.

Ramie Fibre.
Ramie Fibre Co, 120 N. 7th St, Phila, Pa.

Reed and Harness Manufacturers.
American Supply Co, Providence, R. I.
Huston, Wm, 46 Clifford St, Providence, R. I.
Walder, J, Paterson, N. J.

Ribbons.
Cheney Bros, S. Manchester, Ct.
Friedberger, S, Germantown, Pa.

Roll Coverers.
Barlow, John W (worsted rolls), Lawrence, Mass.

Roller Skins.
Fell, Geo, & Son, Bolton, England.

Roving Cans and Sheet Metal Work for Mills.
Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave. Providence, R. I.

Rubbing Motion for Wool Cards.
Beswick & Kay, 25th and Callowhill Sts, Philadelphia.

Scales.
How, F. B, 216 Purchase St, Boston, Mass.
Trœmner, Henry, 710 Market St, Phila, Pa.

Separators.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (steam and grease).

Sewing Machines and Supplies.
Champion Sewing Machine Co, 1819 N. 5th St, Phila, Pa
Frame, Gibbons, 2nd and Diamond Sts, Phila, Pa.
Nye & Tredick, 606 Arch St, Phila, Pa.
Scott & Williams, 2077 E. Cumberland St, Phila, Pa.
Singer Mfg. Co, offices in every city.
Union Special Sewing Machine Co, 47 Leonard St, N. Y.

Shearing Machinery.
See Dyeing, Drying, Bleaching and Finishing.

Shell Rolls.
Cohoes Foundry & Mach. Co, Cohoes, N. Y.
Thurston, A. G, & Son, Box 528, Fall River, Mass.

Singe Plates.
New Bedford Copper Co, New Bedford, Ms.

Size.
McKerrow, H. G, & Co, 620 Atlantic Ave, Boston, Mass.

Skylights.
Lupton's, David, Sons, Kensington, Phila, Pa.

Soaps.
Allison Bros, Middletown, Ct.
American Soap & Washolene Co, Cohoes, N. Y.
Draper, J. O, & Co, Pawtucket, R. I.

Spindles.
Buckley, Benj's, Sons, Gun Mill, Paterson, N. J.
Draper, Geo, & Sons, Hopedale, Mass.
Providence Machine Co, Providence, R. I.
Westcott, A. A, & Sons, Hopedale, Mass.
Whitin Machine Wks, Whitinsville, Mass.

Spinning Cylinders.
Hill, Jas, Mfg. Co, Providence, R. I.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Spinning Frames.
See Cotton Machinery.

Spinning Rings.
Draper, Geo, & Sons, Hopedale, Mass.
Whitinsville Spinning Ring Co, Whitinsville, Mass.

Spinning Tubes.
Buckley, Benj's. Son, Gun Mill, Paterson, N. J.
Providence Machine Co, Providence, R. I.

Steam Boilers.
Davidson Ventilating Fan Co, cor. Milk and Oliver Sts, Boston, Mass.
Frick Company, Waynesboro, Pa.
Sargent, J. Bradford, 8 Oliver St, Boston.

Steam Boiler Arch Plates.
Olsen, Chas, 562 W. 25th St, N. Y.

Steam Boiler and Pipe Covering.
Delbert Engineering Co, New Orleans, La.
Keasbey & Mattison Co, Ambler, Pa.
Keasbey, Robt. A, 54 Warren St, N. Y.
Morgan, W. B, Builders Exchange, Washington, D. C.
Nightingale & Childs, 134 Pearl St, Boston, Mass.
N. Y. Fire Proof Covering Co, 128 Liberty St, N. Y.
Watson, H. F, & Co, Erie, Pa.

Steam Boiler Insurance.
Hartford Steam Boiler Inspection & Insurance Co, Hartford, Conn.

Steam Damper Regulators.
D'Este & Seely Co, 29 Haverill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Steam Engines.
Davidson Ventilating Fan Co, cor. Milk and Oliver Sts, Boston, Mass.
Frick Co, Waynesboro, Pa.
Sargent, J. Bradford, 8 Oliver St, Boston, Mass.

Steam Kettles.
Walker & Pratt Mfg. Co, 31-35 Union St, Boston, Mass.

Steam Specialties.
Hine & Robertson Co, 67 Courtlandt St, N. Y.

Steam Traps.
D'Este & Seeley Co. (Curtis) 29 Haverhill St, Boston, Mass. (return float and expansion).
Locke Regulator Co, Salem, Mass.
Tilley, Thomas J, E. Greenwich, R.I.

Steel Castings.
Chester Steel Castings Co, 407 Liberty St, Phila, Pa.

Steel and Iron Roofing.

Chattanooga Steel Roofing Co, Chattanooga, Tenn.

Stop and Speed Limit Attachments for Engines.

Monarch Engine Stop Co, 34 Maiden Lane, N. Y.

Tanks, Tubs and Vats.

American Stave & Cooperage Co, New York and Boston.
Brabender, Chas, & Son, Paterson, N. J.
Burkhardt's, Geo. J., Sons, 2831 N. Broad St, Phila, Pa.
Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.
Caldwell, W. E, Co, Louisville, Ky.
Corcoran, A. J, 11 John St, N. Y.
Hall, Amos H, No. 2nd above Cambria, Phila, Pa.
Oat, Jos, & Sons, 232 Quarry St, Phila, Pa.

Tank Bolt Protector.

Burkhardt, Wm. H, & Co, 240 Chestnut St, Phila, Pa.

Tapes and Braids.

Fleming & Chapin, 215 Church St, Phila, Pa.
Perseverance Mills, 2632-40 Mascher St, Phila, Pa.

Teasels.

Kellogg, Thos. C, Skaneateles, N. Y.
Kellogg, Wm, W, Skaneateles, N. Y.
McLaughlin Bros, Skaneateles Falls, N. Y.

Telephones.

Interior Telephone Co, 829 Exchange Bldg, Boston Mass.

Tentering Machines.

See Dyeing, Bleaching Machinery, Etc.

Tension Pulleys.

Lupton, David's, Sons, Kensington, Phila, Pa.
N. E. Ventilating & Heating Co, 930 Manton Ave, Providence, R. I.

Testing Machines for Yarn and Cloth.

How, F. B, 216 Purchase St, Boston, Mass.

Textile Machinery Dealers.

Clark, Jeremiah, Lowell, Mass.
Schofield, George, Phila, Pa.
Textile Machinery Co, Phila, Pa.

Trolley Tracks.

Coburn Trolley Track Manufacturing Co, Holyoke, Mass.

Typewriters.

Wyckoff, Seamans & Benedict, New York and Boston.

Valves.

D'Este & Seeley Co, 29 Haverill St, Boston, Mass.
Locke Regulator Co, Salem, Mass.

Ventilating Apparatus.

Berry, A. Hun, 23 W. 1st St, Boston, Mass.
Boston Blower Co, Boston, Mass.
Davidson Vent. Fan Co, Cor. Milk and Oliver Sts, Boston.
McKerrow, H. G, & Co, 620 Atlantic Ave, Boston, Mass.
New England Heating & Ventilating Co, Providence, R. I.
Perkins, B. F. & Sons, Holyoke, Mass.
Philadelphia Textile Machinery Co, Hancock St, above Lehigh Ave, Phila, Pa.
Sargent's, C. G, Sons, Graniteville, Mass.

Warp Compressing Machine.

Worcester Warp Compressing Machine Co, Worcester, Mass.

Watchman's Clock.

Imhauser, E, 206 Broadway, N. Y.
Pneumatic Watchman Check Co, Columbus, O.

Water Towers.

Caldwell, W. E, Co, Louisville, Ky.

Water Wheels.

Burnham Bros, York, Pa.
Christiana Machine Co, Christiana, Pa.
Swain Turbine Mfg. Co, Lowell, Mass.

Water Wheel Governors.

Cohoes Foundry & Machine Co, Cohoes N. Y.

Wool.

Webb, Chas. J. & Co, 156 N. Front St. Phila, Pa.

Wool Combs.

Tonwsend, Thos, Manchester, Conn.

Wool Combing Machinery.

Crompton Loom Works, Worcester, Mass.

Wool and Waste Dusters.

Gerry, Geo, & Son, Athol, Mass.
Stillman-Rich Machine Co, Westerly, R. I.

Wool Duster.

Sargent's, C. G, Sons, Graniteville, Mass.

Woolen Machinery.

Altemus, W. W, & Co, 2816 N. 4th St, Phila, Pa.
Atlas Mfg. Co, Newark, N. J.
Davis & Furber Machine Co, N. Andover Depot, Mass.
Furbush, M. A. & Son Machine Co, Phila, Pa.
Harwood, Geo. S, & Son, 7 Water St, Boston, Mass.
Parker, J. B, Machine Co, Clinton, Mass.
Sargent's, C. G, Sons, Graniteville, Mass.

Wool, Hair and Noils.

Webb, Chas. J, & Co, 156 N. Front St, Phila, Pa.

Wool Washers.

Sargent's, C. G, Sons, Graniteville, Mass.

Wool Waste, Shoddy Noils.

Burnley, John B, 41 Strawberry St, Phila, Pa.
Danville Waste Co, Danville, Va.

Yarns.

Carpet Yarns.

Wilmington Mills Mfg. Co, Wilmington, Del.

Colored Cotton Yarns.

Hadley Co, Holyoke, Mass.
Montgomery, J. R Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y
Tucker & Cook Mfg. Co, Conway, Mass.

Cotton Warps and Yarns.

Abegg & Rusch 92 Grand St, N. Y.
Bale, Stuart & Co, 51 Green St, N. Y.
Blythe, Richard A, 114 Chestnut St, Phila, Pa.
Chadwick, Jas, & Bro, 241 Chestnut St, Phila, Pa.
City Mfg. Co, New Bedford, Mass.
Clark, Wm, Co, Westerly, R. I.
Fleming & Chapin, 215 Church St, Phila, Pa.
Fox, Henry C. 45 Strawberry St, Phila, Pa.
Globe Yarn Mills, Fall River, Mass.
Grant Yarn Co, Fitchburg, Mass.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Hadley Co, Holyoke, Mass.
Howland Mills, New Bedford, Mass.
Kerr Thread Co, Fall River, Mass.
Lane, J. H, & Co, N. Y, Boston and Chicago
Littlefield Mfg. Co, Pawtucket, R. I.
Mitchell, Jas P, & Co, Boston and Phila, Pa.
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Sampson, O. H, & Co, 67 Chauncy St, Boston, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R. I.
Tucker & Cook Mfg. Co, Conway, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.
Whitman & Hagan, Providence, R. I.
White, James F, & Co, N. Y. and Phila, Pa.
Whittier Cotton Mills, Lowell, Mass.

Glazed Yarns.

Blodgett & Orswell, Pawtucket, R. I.
Chadwick, Jas, & Co, Jersey City, N. J.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Malcolm Mills Co, Frankford, Pa.
Warren, W, Thread Works, Westfield, Mass.
Whittier Cotton Mills, Lowell, Mass.

Harness Twines.

Bale, Stuart & Co, 51 Greene St, New York
Chadwick, Jas, & Co, Jersey City, N. J.
Hadley Co, 95 Milk st, Boston, Mass.
Kerr Thread Co, Fall River, Mass, and 29 Mercer St, N. Y.
Moore, C, & Co, 12 S. 5th St, Phila, Pa.
Warren, W, Thread Works, Lowell, Mass.
Whittier Cotton Mills, Lowell, Mass.

Hosiery and Knitting Yarns.

Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Chadwick, Jas, & Bro, 241 Chestnut St, Phila. Pa.
Clark, Wm, Co, Westerly, R. I.
Croll, Albert Ivins, Boston, Mass.
Globe Yarn Mills, Fall River, Mass.
Goodwill & Ashworth, Jamestown, N. Y.
Greene & Daniels Mfg. Co, Pawtucket, R. I.
Howland Mills, New Bedford, Mass.
Kerr Thread Co, Fall River, Mass.
Littlefield Mfg. Co, Pawtucket, R. I.
New Bedford Mfg. Co, New Bedford, Mass.
Orswell Mills, Fitchburg, Mass.
Rockwell, E. M, Leominster, Mass.
Sanford Spinning Co, Fall River, Mass.
Skenandoa Cotton Co, Utica, N. Y.
Tillinghast, Stiles & Co, 20 Market Sq, Providence, R. I.
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Whitman & Hagan, Providence, R. I.
Whittier Cotton Mills, Lowell, Mass.
Wilkesbarre Lace Mfg. Co, Wilkesbarre, Pa.
Winterbottom, Hyde & Co, 223 Chestnut St, Phila, Pa.

Jute Yarns.

Lane, J. H, & Co, N. Y, Boston and Chicago
Wilmington Mills Mfg. Co, Wilmington, Del

Novelty Yarns, Tinsels, Silk Noils, Etc.

Cranston Worsted Mills, Bristol, R. I.
Malcolm Mills Co, 26 Chestnut St, Phila Pa.
Montgomery, J R, Co, Windsor Locks, Ct.
Sanford Spinning Co, Fall River, Mass.

Silk Yarns.

Bale, Stuart & Co, 51 Green St, N. Y.
Cheney Bros, S. Manchester and Hartford Ct.
Griswold Worsted Co, 322 Chestnut St, Phila, Pa.
Ryle, Wm, & Co, 54 Howard St, N. Y.
Sauquoit Silk Mfg. Co, 76 Chauncy St, Boston, Mass.
Taff, Alfred, 69 Mercer St, N. Y.
Walnsley, Philip, & Co, 34 Greene St, N. Y.
Whiteside, James, 96 Spring St, N. Y.

Woolen and Merino Yarns.

Brown, Wilson H, & Bro, 240 Chestnut St, Phila, Pa.
Fleming, Geo. M, 35 Strawberry St, Phila, Pa.
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Guerin Spinning Co, 92 S. Main St, Woonsocket, R. I.
Johnston & Farie, 132 S. 3d St, Phila, Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Mitchell, Jas. E. & Co, Boston, Mass, and Phila, Pa.
Rockwell, Edward M, Leominster, Mass.
Sawyer, Manning & Co, 86 and 88 Franklin St, N. Y.
Winterbottom, Hyde & Co, 223 Chestnut St, Phila, Pa.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.

Worsted Yarns.

Abegg & Rusch, 92 Grand St, N. Y.
Alleghany Worsted Mills, Phila, Pa.
Bale, Stuart & Co, 51 Green St, N. Y.
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Fox, Henry C, 45 Strawberry St, Phila, Pa.
Goodwill & Ashworth, Jamestown, N. Y.
Griswold Worsted Co, 322 Chestnut St, Phila. Pa.
King, Alexander & Co, 54 Leonard St, N. Y.
Providence Worsted Mills, Providence, R I.
Solis, Andrew J, Jr, & Co, 179 Devonshire St, Boston, Mass.
Washington Mills Company, Lawrence, Mass.
Whiteside, James, 68 Spring St, N. Y.
Whitman & Hagan, Providence, R. I.

Yarns, Threads, Etc.

Banding.

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Warren, W, Thread Works, Westfield, Mass.
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Thomas Firth

TEXTILE WORLD.

Vol. VII. DECEMBER, 1894. No. 12.

THOMAS FIRTH.

As a man of leading prominence in his chosen field, and one whose career furnishes a notable example of self-achieved success, we present to our readers, the portrait of Thomas Firth, founder of the Providence Dye Works, and senior member of the widely known firm of Firth & Foster Bros., Philadelphia. In our passing tribute we cannot recount the hardships and discipline through which Mr. Firth has reached his present eminence in business; though to justly mention his career, we must not omit the fact that he followed the rugged path which always stretches ahead of humble and unaided boyhood. He learned the lessons of his business amid the grime and steam of boilers and vats, and toiled many years in vapor soaked flannels and clog shoes.

The Providence Dye Works are the largest in the United States, in number of hands employed, area covered, and variety of production. They took their name from the Providence Worsted Mills, Hestonville, W. Philadelphia, which mills were occupied as dye works by Thomas Firth & Bro., prior to the establishment of the present firm and the erection of their present plant. The business had its beginning in 1867, Thomas and John Firth being proprietors. In 1869 they removed to Fairmount Ave., continuing there till 1876, when, for want of greater facilities, they moved to their present works, which are bounded by Taylor, York and Emerald Sts.

The firm of Firth & Foster Bros. was formed in 1879, Joseph R. and John H. Foster being admitted. The Fosters, like the Firths, were thoroughly practical dyers, and with their entrance into the firm, piece dyeing was added on a large scale. Finishing for the upholstery trade also became a leading feature, which, added to their work for the dress goods, hosiery, cassimere and cloaking trades, gives the firm the prestige of being the largest general dyers for the country, in the United States.

Like most successful concerns, the Providence Dye Works had a small beginning; their first work was the dyeing of warps and yarns of special kinds; then cotton yarns, suited for hosiery and weaving cotton, and finally woolen and worsted dress goods, mixed cassimeres, cloakings, woolen and worsted slubbing, cotton yarn and warp dyeing and bleaching came in turn as regular business. Messrs. Joseph and John Foster give active attention to dyeing and finishing, and enter into every practical detail of their business, while Mr. Firth supervises the office, and attends to finances and general outside affairs. About five hundred hands are employed, and New York and Philadelphia offices are maintained. A large stable of draft horses and quite

a number of wagons, belong to the firm's outfit. The buildings cover several acres, and make an imposing view, which, in a future issue, we shall probably present.

* * *

Thomas Firth was born in Yorkshire, England, Oct. 6, 1842. He came to America in 1863, having obtained the mastery of the dyeing business in his native country. In his business ventures here, he always associated with him his brother, John Firth, with whom, until his death, a little more than two years ago, the closest and kindliest relations existed. He began the struggle of life poor, receiving his first training in a dye house. The spirit of self-dependence early developed itself, however, and when the door to wide success could not be opened where he had gained his practical knowledge, he quitted that field and came to America. How well he has succeeded is told in the foregoing sketch. Mr. Firth, though often tempted in later years, has declined to be led into side enterprises or political affairs. His sole attention has been given to the business which has been reared to such great proportions, and barring his consent to serve his ward in the common councils of Philadelphia, he claims no other than business distinction. He is now serving his fifth term as councilman from the 19th ward, which honor attests the confidence and esteem of those who know him best. Mr. Firth has the assistance of two capable sons, both of whom are taking hold of the practical ends of business.

Our Trade with South America.

What the South was, South America is—a seller of raw material; but a tingle of the industrial energy now exhibited in the Southern states, stirs in the Latin divisions. This there is ample proof of. The sea that holds European factories aloof from them, and entails so many transit charges, is teaching them, as it is the South, to match material and men at home. So far as the manufacturers of cotton are concerned, the staple is not grown in South America to a degree that can interfere with continuous outputs thence, but what fabrics are most needed there can best be seen by what Europe supplies after years spent in close study of Latin markets.

On August 13, the second and last day of the Convention for the Development of Southern Industries was opened by W. P. Vincenhaller, Commissioner of Mines, Manufacture and Agriculture, of Arkansas. Before it closed it decided upon a permanent organization and contemplates the establishment of a permanent exhibit in the city of Washington, of all the resources of the Southern States. The progressives of the South are a unit in the support of the ideas of this convention.

The four months' exposition to come off in Atlanta, in 1895, is another indication of the South's right foot being foremost.

These things, however, are but the clinching of the fists, the straining of the muscles, the taking of a long breath preparatory to a dash. The South will receive its greatest impetus—a great impetus—during the coming year from the reorganization of the Richmond Terminal system, and the merging of the thirty or forty railroads composing it into one strong organization based on modern economic principles of railraad management—the new Southern Railway Company. This new company began business September 1, and is the final accomplishment of the plans and purposes of reorganization undertaken by Drexel, Morgan & Co. With its control of 4500 miles of Southern track, many of the difficulties the manufacturers of that section have always had to battle against will be at once considerably lessened.

The South will then reach out; so must the country.

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NEW ENGLAND TEXTILE DIRECTORY.

The October issue of the TEXTILE WORLD contained a complete directory of the textile establishments in the New England States, giving name of mill, location, railroad connections, distances, officers, agent, superintendent, capacity of mill, kind of goods made, water power or steam, whether dye house or not, selling agents, etc.

It is illustrated by specially prepared maps of each State, showing the location of each city or town where there is a textile establishment, and only such towns.

Copies of October issue may be had for 50 cents each at any of our offices.

The Middle States Textile Directory will be published in the April Number.

The Situation.

The feeling of returning confidence and readiness to do business is at last unmistakable in textile circles. The very presence of such a feeling is the best warrant of a speedy recovery from the gloom which has for so long a time hung over the spirits and business hopes and ambitions of the mill trade.

Our news reports tell a tale of mills starting up and running full time, of the overhauling of old machinery and installation of new. Manufacturers who have for some time felt the need of certain changes and improvements, but have postponed every possible expense, now feel like carrying out their deferred plans. This has made better business for the machinery builders, and the reports from that trade confirm the news of general improvement.

There has been a very marked improvement in the print cloth market. The price for 64 squares has stiffened up to 2 3-4 cents, and large contracts for future delivery have been placed. The stock on hand is very low. The slight advance in price of cotton has a tendency to maintain firmness. Most manufacturers have taken advantage of the unprecedentally low price that has ruled this summer and fall, to lay in large stocks.

Ginghams and other staple lines are not especially active, but good inquiry is noticed and a healthy tone prevails.

Among woolen manufacturers the feeling of better cheer is the more apparent, because they are emerging from a deeper shadow of gloom. Assured by the development of the situation that they can maintain their position in the home markets, they are showing commendable aggressiveness in almost all branches of the trade. The next season will open about the 15th of December to first of January with prices of course based on the tariff schedules of January 1st.

In worsted lines the foreign compe-

tition will be most fierce, but our manufacturers feel confident of their ability to meet the conditions and we think they will.

It will take a season to demonstrate where the weak spots of the schedules are, and on what lines competition will be hardest to meet. There will naturally be much "feeling the way," but encouraged by the willingness, yes the preference of the buyers to deal with the American mills at short range rather than the foreigners at long distance, and the fact of the buyers' present urgent needs, domestic manufacturers are gaining confidence every day, and their confidence is the feeling which is reflected throughout the entire market.

The November elections marked the turning point, and we feel the general sentiment of the manufacturing fraternity bears us out in the prediction of good business for the next six months at least.

Style Suggestions for Woolen Manufacturers.

During the past few weeks and at present, there is one of the largest markets for kerseys ever known; almost anything in that class of goods which has a good face and is of a fair quality, will sell. The buyers, early in the year, placed very limited orders for this class of goods, and now they find themselves running short, and as all the available goods in the market have been used, they are placing orders to be delivered as late as December 15. This fact seems to have a great influence on the coming heavy weight season, and as buyers are so busy on present heavy weights, they are not ready to buy new lines; and consequently the opening of the season will probably not be before the 15th of December, and it is a question if it will be before January 1st.

The manufacturers are waiting for the foreigners to show what effect the lower duties on finished goods will have on the home markets. The impression is general, that present prices, which are thoroughly on a free trade basis, will not go any lower, and the majority of manufacturers say that they will meet the foreigners, no matter how low they put their prices. In regard to raw material, the American manufacturer can readily do this, for on medium and low domestic wools, the values are lower than those at which competing foreign wools can be bought, while domestic fine wools compare favorably in price with the foreign article.

The leading things in overcoatings will be kerseys, and the only colors which will sell will be black and blue; any good black will do, but the blue should be dark, and have an indigo look; the Germanias made a dark blue, which is just the exact shade which will be demanded.

Meltons will not be used so much for overcoats, but if a fine line of dark and medium colored mixes are made in a well felted fabric weighing about 23 ounces, they will sell readily for suits. Some Western mills make a specialty of this line of goods, and it would be well to study up this fabric, before making samples.

In cassimeres, those made on the plain weave, double cloth, the back and face cloths interchanging for the stripe effects, will be the sellers. They should be made in very neat stripes such as hair lines; and a very good change from a hair line, is to make one in which the hair lines alternate in color; and by using this method of changing, a great variety of effects can be produced.

Fancy worsteds are the lines where the foreigners will strike the hardest, and it is a question of fabric and price here. These styles should be neat as possible, and some wide stripe can be made, the stripe effect being obtained by the change in the weave, the colors being medium and dark, and on the bluish shades.

Mills Making up Clothing.

There has been a noticeable movement in the past few years, on the part of the smaller woolen mills, principally in Maine and in the Western states, in the way of making up their product and selling it in the form of ready made clothing, instead of as cloth.

In small mills located in country districts, this plan seems to work very well. Abundance of intelligent help can be secured for making up the cloth, at low rate of wages. No difficulty is experienced on account of labor disturbances, and the conditions under which the clothing is made are superior to those which prevail in the large city contract sweat shops. These mills are turning out clothing that finds ready sale, and in several instances that have come to our knowledge, they cannot fill their orders which they receive direct from the large retail clothiers; indeed, one or two we have in mind have their entire product contracted ahead for a year.

Naturally, it is highly essential, that, before engaging in such work as this, proper provision should be made in advance for the disposition of the product, for no small mill could afford the expense of maintaining a staff of salesmen to compete with the wholesale manufacturing clothiers.

As there seems to be a disposition on the part of large retail clothing establishments and certain jobbers of clothing, to arrange with mills who desire to equip their plants for the manufacture of clothing, this element of the case presents less difficulty than might at first be imagined, and the expense of selling is thus reduced to a minimum, while full price is realized for its cloth product, and a fair profit can doubtless be figured on the manufacture of the cloth itself, through the saving of the usual commission house charges.

We have seen some very superior garments turned out on this plan, at a surprisingly low price, and both the mill and the clothier seem to be well satisfied with the results and with this method of doing business, which is in direct line with what foreigners call the "American system" of manufacturing; that is, performing all processes under one management. These mills add another step in the journey between the raw material and the finished clothing.

Is the Demand for Worsted Yarns Ahead of the Capacity of our Mills?

The present over-taxed capacity of the mills making worsted yarns for sale, leads to the query whether there is enough worsted spinning machinery in this country to supply the demand from the weavers in a normal heavy weight season. During the past few years, many mills that spun for the market have put in weaving machinery of their own, and are practically out of the market for sale yarns. Then the great demand for clay worsteds has called for thousands of pounds; so likewise has the worsted dress goods trade.

Then again, it is reasonable to suppose that the class of goods known as cotton worsteds will be largely supplanted by all wool or worsted yarns. Owing to the low price of wool, the necessity for using cotton yarns in the cheaper fabrics will not be so apparent in bringing the cost down.

This season, orders were not placed early enough to give the matter a fair trial. Certainly at the present time, worsted spinning mills are most of them behind orders, and we know of instances where in the weaving establishments looms are stopped, waiting for yarn. With confidence once firmly established in the future tariff policy of the government, there is little doubt but what worsted spinners would feel encouraged to increase their facilities; indeed, we have already heard several rumors of important new mills and enlargements.

—The trade press as well as the daily and weekly journals of the manufacturing cities and towns have commented very favorably upon our October Directory number and we are in receipt of many marked copies containing pleasant notices. We return thanks to our newspaper friends for the favorable criticism accorded this new feature of the TEXTILE WORLD.

A New Idea in Protection.

A prominent and successful merchant of Sacramento, California, David Lubin by name, has attracted much attention in the past year to his proposition for a remedy for what he claims are the unequal burdens of protection. He takes the ground that while the protected manufacturer sells his product at protection prices, the producer of staple agriculture is obliged to sell his product at the world's free trade prices and that the farmer is just as much entitled to protection as the manufacturer.

This seems logical. If a manufacturer is perfectly willing that the wool grower should receive protection for wool, how then can it be denied that the man on the next farm, who raises wheat, we will say, should not be accorded equal protection? But how is this to be accomplished? Certainly not by an import duty on these products. There is a duty of 25 per cent. on wheat already, but it is practically a dead letter, because we import no wheat. How then can protection be given to a staple product, which is an article of export rather than import?

Mr. Lubin takes the ground that the price of agricultural products in this country, whether for home consumption or export, can be no greater than the price in Liverpool less the cost of transporting them thither from the place where they were raised. In other words, if the price of wheat in Liverpool is $1.00 a bushel, and it costs 20 cents per bushel to get it there, the price in this country, whether for home consumption or foreign consumption, can only be 80 cents per bushel. One who looks into the facts in this matter must admit that this is so. Furthermore, the price in Liverpool is regulated at the lowest price which Liverpool can buy wheat in any of the markets of the world, therefore our farmers are in direct competition with other great grain raising countries of the world, where labor cost is very much less than with us.

Mr. Lubin's remedy is for the United States Government to pay a certain proportion of the cost of transportation from the place of raising to the export market. He cites the case of wheat, for example. We export about one-third of our wheat crop, and use the other two-thirds in home consumption. If the government paid five cents a bushel, we will say, toward the cost of freight, it would not only advance the price of the *amount exported* five cents per bushel, but it would also advance the price of the *whole* wheat crop, for home consumption as well as export, by five cents per bushel. The farmer would be so much better off, and the extra millions of dollars which the wheat crop would bring, would be expended by him in the purchase of protected manufactured products, thus resulting in the mutual benefit of farmer and manufacturer.

It is a well authenticated fact that the general business of this country keeps pace with the prosperity of the agricultural interests. It must be so with any country whose agricultural interests form its principal industry. Mr. Lubin meets the objection that the treasury could not afford to pay the vast sums that would be required for this purpose by a statement that the vastly greater sums which would be obtained by the farmers for their crops, must of necessity be spent for the manufactured articles which the farmer does not produce himself, but buys from the manufacturer and importer, greatly increasing the imports, and bringing about such an increase of customs receipts as would provide for the needed payments on freights.

This proposition, which at first thought seems but the visionary scheme of a dreamer, is, nevertheless, an ingenious idea, and the details of the plan have been carefully worked out by its originator.

We would offer an amendment to Mr. Lubin's proposition, to the effect that if the government should pay any proportion of the freight charges on exported agricultural products, it should be only on such as were carried in American bottoms; this would have just as much effect in assisting the farmer, and at the same time be of tremendous advantage to American mercantile interests, which are in such sad need of help of some kind.

QUESTIONS AND ANSWERS.

Under this head we shall undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

Asbestos Thread.

ONTARIO, Nov. 19, 1894.

Editor of the Textile World:

Can you tell us how fine a count asbestos thread can be spun, and who are the parties who spin it, also could you get us a sample of it. By so doing you will greatly oblige

A SUBSCRIBER.

[There is no system of counts for asbestos yarn, and the finest that is spun for commercial use is of larger size than cotton numbers. The H. W. Johns Mfg. Co. spin it to order. We send you sample, which you will note is two-ply. There is one size made finer than this sample. We see no reason why, on proper machinery, it should not be spun as fine as No. 8 cotton number, but the uses to which it has hitherto been put do not demand such fine counts.]

Imported Hosiery Yarns.

SALT LAKE CITY, UTAH, Nov. 15, 1894.

Editor of the Textile World:

Will you kindly give me the name of a firm or firms handling imported cotton and woolen hosiery yarns, who are in a position to quote prices for delivery after Jan. 1st, 1895.

The October World received. The magazine is a great improvement over the old form, and contains much useful information. Have noted the change in subscription price, so please notify me when the six months expires, and I will remit balance due.

Yours truly,

C.

[We have sent you the names of several firms handling the lines you inquire about, and would also refer you to our advertising columns, where you will find a number of concerns represented who are in a position to quote prices on foreign yarns.]

Oil Filter.

PAWTUCKET, R. I., Nov. 13, 1894.

Editor of the Textile World:

Can you favor us with the address of the maker of the Tracy Oil Filter?

SAWYER HARDWARE & SUPPLY CO.

[This filter is made by the Phœnix Automatic Filter Co., Racine, Wis. Alden Speare's Sons, Boston, Mass., are agents for it.]

Sample Cutter.

Editor of the Textile World:

I note in your November issue that "M. H." wants a sample cutter, and would say that having been unable to get a machine that suited me, I built an 18 inch cutter that has cut over 55 000 samples this season without being sharpened, and if he is interested, I will send him photograph and description of my machine, and can make him one from the same pattern for $50.

Yours, etc.,

A. H G.

Blanket Bindings.

WOODLAND, CAL., Nov. 20, 1894.

Editor of the Textile World:

Will you kindly refer us to some dealer in blanket bindings, with request that we be furnished samples.

WOODLAND WOOLEN MILLS.

[We have referred you to several concerns, who will be pleased to forward you samples.—ED.]

Books Wanted.

COLUMBIA, MICH., Nov. 23, 1894.

Editor of the Textile World:

Will you please inform me where I can get a woolen and cotton mill directory? I mean one which will give the size, location and class of goods made by the different mills, also if you have a manual on loom fixing.

[In the October issue of the TEXTILE WORLD you will find a complete directory of all the mills in New England, giving the information you require about each, also map, showing location of the different mill towns. In subsequent issues of the TEXTILE WORLD, directories of the other states will be published with maps. There are several textile directories in book form, viz., Dockham's "Textile Manufacturing & Dry Goods Trade," and the "Blue Book." There is a book called the "Loom Fixer's Manual," by Baldwin, which contains rules and instructions for setting up and operating the Crompton and Knowles looms, and other looms. Price of this book is $1.50. We can furnish it if desired.]

Saving Waste Products from Wool Washings.

14 WATER ST., NEW YORK, Nov. 24, 1894.

Editor of the Textile World, Boston, Mass.:

Dear Sir,—In your November Journal, page 31, we notice an inquiry on modes of reclaiming the grease and purifying the refuse waters in mills, among which you mention our process; but, above all, you give predominance to the acid process as used along the Blackstone river, near Providence.

We have made this economial question a study for a great many years, and we are thoroughly conversant with the different

processes here and in Europe, and on that foundation we build up our process, and we claim that there is no other in use this day that has the same advantage as to thoroughness, rapidity, space saving and labor saving, and, as a rule and a consequence, cheapness of operating cost. We can prove that the operating of our process costs only one-half of the acid process in use on the Blackstone river. Yours very truly,

ALEX. P. MENDE.

Instruction in the Spanish Language.

PHILADELPHIA, PA., Nov. 19, 1894.

Editor of the Textile World:

The undersigned would like to secure what assistance he can in agitating the importance of the merchants of this city opening, by subscription, a night school for instructing young men who wish to visit South and Central America, with the object of engaging in their various callings, in the Spanish language. The greatest good to this country would result if this movement could be started, and the advantages accruing at an early day would astonish our most progressive citizens. Kindly agitate the question in your columns. SIRKOM.

[This subject is one of general interest, but we are under the impression that there is ample provision already made in the city of Philadelphia, as there is in other large cities, for those who wish to acquire a knowledge of the Spanish language. The Young Men's Christian Associations in all the large cities have classes in French, German, Spanish and Italian, and any young man, we believe, to whom it is an object to acquire a knowledge of Spanish, will find adequate facilities for so doing. We are willing to give what assistance we properly can, however, in case it is found advisable to inaugurate a movement of the kind indicated.—ED.]

Nankeen Cotton.

A correspondent from the South, who is much interested in our recently published article on Peruvian cotton, informs us that a large exhibit of Nankeen (brown) cotton, will be made by Floyd County, Ga., at the Cotton States Exposition in 1895.

Some of the farmers in Georgia are raising it, and it is now being manufactured into counterpanes, portieres, curtains, towels, etc., in the above named county, and it is the intention of the planters in that section of the country, to make a fine showing in that line, which will attract attention to this species.

We have in past years directed attention to this variety of the cotton staple, which in times before the war was commonly to be met with, but of late years has become almost extinct. The demand from manufacturers of knit goods for Egyptian yarns, which are manufactured into fabrics and sold in their natural tint, seems to give every assurance that a ready market might be found for American grown Nankeen cotton of this same desirable shade. The facts which have been developed in regard to Peruvian cotton, and which we mentioned in our article on this subject, viz., that the different shades of cotton are not freaks of nature, but that the desired colors can be obtained from certain seed, under known conditions, opens up a wide field for investigation and experiments along this line by Southern planters.

The Standard Dictionary.

The second and concluding volume of this great work is announced as ready for delivery by its publishers, the Funk & Wagnalls Co., of New York.

Frequent consultation of the pages of the first volume confirms our high opinion previously expressed in regard to its accuracy and completeness. We have often been surprised with its comprehensive scope in regard to technical and trade words, and have sometimes referred to its pages for the purpose of looking up some technical textile word, feeling sure it would not be found, but the "Standard" never seems to be at fault, even in the minute differences of trade distinctions, which are not noted in other dictionaries. This work really marks an epoch in the history of the English language. It is now finished after five years of labor, with the help of 247 editors, and an expenditure of nearly $1,000,000. The sales have already been phenomenal.

From our own experience, and after comparison with the other best known dictionaries, we have no hesitation in stating our preference for this work, for its wonderfully exhaustive vocabulary as well as for its convenient system of compilation for reference.

COTTON DEPARTMENT.

Chats on Cotton Combers.

X.

For the Textile World.

"When there is one layer of roving on the bobbin, the diameter of the bobbin (as found by former calculations) is increased about .093 of an inch, thus the empty bobbin being 1 5-8 or 1.625 inches in diameter, to which .093=1 718 inches diameter of bobbin, with one layer of roving on $1.718 \times 3.1416 = 5.40$ inches circumference of bobbin with one layer of roving on.

"There being no variation in the speed of the front roller, you will at once perceive that the bobbin must run slower with each succeeding layer that is wound on. How is this done?

"Attached to the rail is a mechanism called the Jack in the box, or traverse change motion. The Jack in the box performs three things; it reverses the rail and makes it travel in the opposite direction, when the roving is wound as near the top or bottom of the bobbin as is desired; it also tapers the bobbin on both ends and releases the catch, and allows the rack gear to turn half a tooth with each change, thus letting the shippers or guides on the cone belt move towards the small end of the top, or driving cone, and the large end of the bottom, or driven cone, thus retarding the speed of the bobbin, and the vertical traverse of the rail.

"While the rail is descending, the first layer on the bobbin will be winding towards the top. When it reaches a certain point, it becomes necessary to make the rail ascend and wind on a second layer; this is done by a catch or lever coming in contact with a set screw, which, by the aid of the motion of the rail, releases the catch and brings into operation a weight, which, by levers and rods, operates on the traverse reverse shaft, so as to make it move horizontally sufficient to disengage one of the twin gears from the small bevel gear which drives it, and engaging the other twin gear, on the opposite side of the small bevel gear, thus causing the twin gear to run in the opposite direction, and as the rail gets its motion through the twin gears, causes the rail to reverse also.

"Before this change takes place again, the weight just referred to, is placed in such a position by a chain, that it comes on a beam, and is lifted in such a manner, that the weight does not operate at the next change, but another weight is brought into play, which performs the same functions as the first, only moving the traverse reverse shaft and twin gears in the opposite direction to the first change, thereby reversing again, and so on through the set.

"When this change takes place, there is a catch which releases the rack gear, and by means of a weight and chain, forces the rack gear to turn half a tooth, where another catch holds it until the next change. When the rack gear turns it moves a bar with two guides attached, through which the cone belt runs and drives the bottom cone.

"The work of the rack gear is to regulate the distance the belt must move so as to give the bottom cone a slower movement with each layer of roving wound on the bobbin; also to regulate the taper. This bar or rack contains 44 teeth to 12 inches gearing; into the rack is a gear with 40 teeth in it. There is also a gear on the same upright shaft with 21 teeth, which is driven by a gear with 18 teeth, which obtains its motion from the rack gear.

"The bobbin has 120 layers of roving on when full, therefore the rail should change 120 times. From the time the bobbin is empty until it is full, the cone belt has, by the aid of the rack, moved 24 inches from the end of the cone. There being 44 teeth in 12 inches of the rack, there will be 88 teeth in 24 inches, thus 12:24::44=88 teeth in 24 inches of the rack. 88÷40 the number of teeth in gear driving the rack×21, gear on upright shaft÷18, bevel gear driving the 21=2.56, turns of shaft that rack gear goes on in making a set of roving. 120 layers on full bobbin÷2.56=46, which must be divided by 2, as the catches allow the rack gear to turn but 1-2 a tooth at each change thus, 46÷2=23, the rack gear required.

"The rack gear may be obtained, but it is not practical as it would consume too much time; also because the rack gear is not a standard gear, as it regulates the tension of the roving, which is liable to change considerably as the tension is affected by any changes in the atmospheric condition of the room.

"The tension of the ends on the speeders requires great care on the part of the man in charge. If allowed to run too tight the roving is weakened, and invariably causes thick and thin places, besides giving the speeder tender a good deal of unnecessary work piecing up ends, and causing a loss in the quantity as well as the quality of the work turned off. If allowed to run too loose, the ends keep flying out of the fliers, when, with a little care, this may be avoided.

"The following is the method of obtaining the lay gear.

6.33 inches is the distance traversed by the rail while the lifting shaft makes one revolution.
57 teeth in gear on the end of lifting shaft.
13 teeth in socket gear (double carrier).
80 " " " " " "
60 rows or layers on the empty bobbin (wound spirally).

If there are 60 rows on the empty bobbin with a ten-inch traverse of the rail, how many rows will there be on 6.33 inches of the empty bobbin?

"10:6.33::60=37.98 rows on 6.33 inches of empty bobbin. To wind 37.98 rows on the bobbin will require the bobbin to revolve 37.98 turns more than the spindle, while the rail is traveling 6.33 inches.

"When the bobbin has gone the stated number of turns, the reversing shaft to which the lay gear is attached turns 15 times, therefore $\frac{80\times57}{15\times13}=23.38$ lay gear. Put on a 24 lay gear.

"Great care must be exercised at this stage of the work; the clearers must be kept clean, the fliers must be cleaned twice while the bobbin is filling up. When the first set is full, take four rovings and reel them. They should weigh 10 grains for each 12 yards; that will be one hank roving.

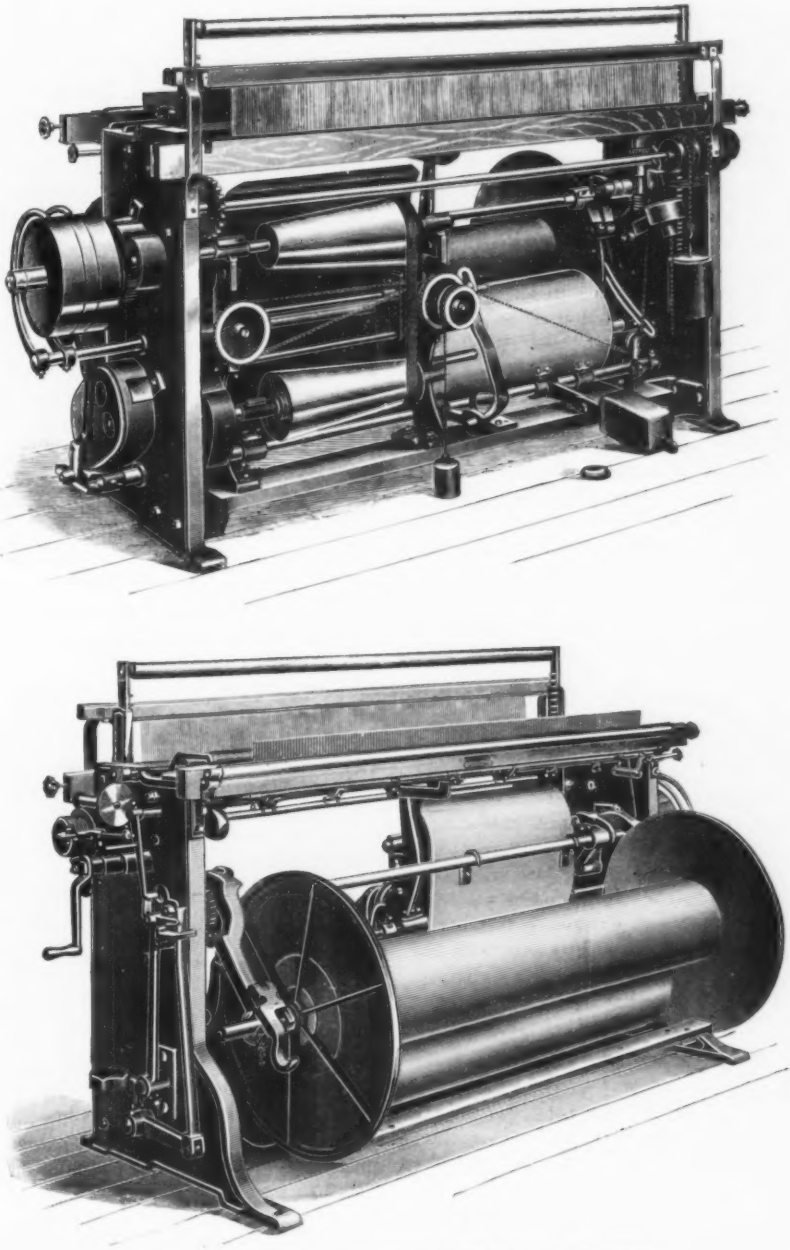
"After it has been reeled let me know if it is all right, then I want you to prepare a first intermediate frame, as I want to make 2.50 hank roving at the next process."

The Hopedale Warper.

While warpers form a small part of a plant, yet they are important factors in the production of perfect cloth. They demand careful attention to insure best results.

George Draper & Sons, Hopedale, Mass., have for the past twenty-five years been devoting almost exclusive attention to certain special lines of machines; the warper is one of these lines. The modern warper is practically a development of their shops; they have put upon the market many valuable improvements in this line. The Walmsley stop motion, the slow starting motion, adjustable creels, the straw leasing motion and the Clark balling machine were introduced by this company, and more recently they have introduced the Hicks cone drive, a new slow starting motion, the geared rise roll, and an improved stop motion.

But notwithstanding the fact that these improvements have developed their warpers into the highest grade machine, they were not satisfied with standing still, and now present another improvement, the most radical of all, namely,



THE HOPEDALE WARPER WITH LATEST IMPROVEMENTS

low cylinder with eccentric drive. This device is illustrated in the accompanying cuts, back and front views being shown. A small cylinder or driving drum is used, and by having its driving shaft eccentric to the main shaft, the head of the beam can overlap the centre, and a full-size 26-inch beam head can be driven by a 12-inch cylinder. The advantages derived are as follows: They can make the machine four inches lower, and the width over all will be 4 1-2 inches narrower. The warper tender can therefore tie the broken ends with greater ease, and shorter help can be used to tend the machines. By driving the cylinder at a constantly decreasing speed they are enabled to preserve a constant and uniform strain upon the yarn, saving greatly in breakages. It is also possible to increase the production 25 per cent, which enables a less number of machines to do the same work, thus saving in floor space with all its incidental expense.

These new features are well covered by patents, and there is, therefore, no competition with other concerns on these points, but if the latest improvements are not desired, this company build their machines without the more important new features, and yet put on the geared rise roll, the new Walmsley stop motion, the new slow motion and the regular reeds, combs and measuring roll at competitive prices.

The builders believe, however, that the latest valuable improvements will well repay the extra expense involved and that old mills as well as new will find it desirable to investigate the matter.

Contraction of Warp Yarn.

It is very often required that the length of warp required to weave a given length of cloth be known. This length of warp will vary according to the pattern or weave, and also depends on the elasticity of the yarn and the counts of both warp and filling.

Owing to this difference in the elasticity of various classes of yarns, and the variation of the elasticity of the same yarn at different pressures, it is impossible to lay down rules for the calculation of the exact warp length for a given piece of cloth, or for the exact width in the reed for a required width of piece. The length of warp required can only be obtained with exactness, from experience, especially in fancy cloths.

As is well known, two-ply yarns are more elastic than single; indeed, with some kinds, such as are used in velvets, the percentage of contraction becomes less with an increase in the number of picks, owing to the increase of pressure upon the yarn, which causes it to stretch more.

Roughly, the amount of contraction to allow in the warp can be obtained by taking into account the counts of filling and the number of picks.

THE MORE PICKS

the more the warp will be bent out of a straight line. Also, with an increase in the number of picks the amount of "take up" or contraction will increase.

This does not vary in a regular manner, as the angle the warp makes in bending over the filling changes with the variation in the number of picks; also, the greater pressure on the warp the more it will stretch, and the more the filling will be beaten up at the point of intersection.

Although many rules are given, it can only be roughly estimated unless the manufacturer has had experience in making this class of goods.

A method of roughly estimating the percentage of milling up of the warp is to multiply the intersections of the warp per inch by a number found, by experience, to give the right result, and to divide this result by the count of the filling.

For cloths in which there are a great many picks the multiplier four gives a fairly accurate result, and in cloths with a medium number of picks and medium counts the multiplier three should be used. In

SOME CLASSES OF GOODS

the multiplier requires to be five, but when a correct multiplier is found for a certain class of goods, it will serve for changes in that class.

The system is certainly not accurate in all cases, but it embraces roughly the different causes which alter the percentage of contraction or take-up in the warp, and is, therefore, of some use in practice.

As an example, it is required to weave a 94-yard piece on a 5-harness satin weave, 180 picks to the inch, 60's warp and 70's filling. The number of intersections per inch will be two-fifths of the number of picks, as the warp intersects twice every five picks. Thus $\frac{2}{5}$ of 180 equals 72 intersections per inch, and 72 multiplied by 4% contraction, and divided by 70 counts, equals 4 yards; so the length of warp required to weave the 94-yard piece is, therefore, 98 yards.

In a plain cloth the contraction is much more than in a satin, and the percentage is greater in heavily picked cloths than light ones. In a plain cloth of 120 picks per inch, 60's twist, 70's filling, the percentage of take-up will, roughly, be as follows: Intersections per inch $120 \times 4 = 480 \div 70 = 6\frac{8}{7}$% contraction. In a plain cloth the

WARP INTERSECTS EVERY PICK,

and so the intersections per inch are the same as the ends per inch. In a "two and two" twill the warp intersects twice in four picks, and the intersections per inch will be one-half the picks.

In more medium cloths the multiplier three is used as follows: Plain cloths, 60 picks per inch, 32's twist warp and 40's filling: $60 \times 3 \div 40 = 4\frac{1}{2}$% contraction.

In fancy cloths experience is the only guide as to the warp length required, but in striped cloths and similar fabrics woven from one beam the contraction of the whole will be that of the tightest weave in the pattern.

In a fabric in which there are only a few plain ends in the pattern, the other ends being loosely interwoven, it does not follow that the take-up will be as much as in a plain cloth, as the plain ends will compress the filling more at the point of intersection than could occur if all the ends were weaving plain.—*From Taylor's Cotton Weaving and Designing.*

The Great Rival of American Cotton.

One of the most remarkable incidents in the history of the textile industry of the United States, has been the enormous growth of the imports of Egyptian cotton.

Within the past ten years this foreign staple has secured such a foothold in the markets of cotton exporting America, that during last year alone there were sold in this country 40,000 bales, or 28,000,000 lbs., valued at $3,000,000. These figures are officially certified to by the United States consul at Cairo, who states that Egyptian cotton first came into American use in the manufacture of babbriggan hosiery. Its increasing use has, however, been ever since coincident with the development of knit goods manufactures.

While it is far cheaper, it is said by experts to be better than our Sea Island cotton; and it has almost entirely usurped the place of American cotton abroad in the production of lisle thread goods.

It is the irony of fate, that this cotton came originally from the very fields of the South, to the product of which it is now so formidable a rival. According to the story, the Confederate officers, engaged by the Khedive of Egypt to reorganize his army, imported large quantities of Sea Island cotton seed, which they sowed in the Valley of the Nile, and carefully improved upon in culture. The peculiarly valuable characteristic of this Egyptian cotton is, its brown color and silky lustre, which characteristics are imparted to the knit goods.

Since the civil war, Southern cotton planters have fallen into the habit generally, of ginning the cotton immediately after its picking. It is declared upon good authority, that better cotton was grown before the war, when the seed cottton was stored as it was picked, and afterward ginned at leisure. It is believed that the former method of storing, before ginning, gave time for the fibre to absorb just a little oil from the seed, which imparts some of the peculiar

characteristics of the favorite Egyptian cotton. The dry and cut cotton as it is now ginned in the South easily generates electricity, which charges each fibre until it stands on end, and it almost spoils it for use in spinning. A preliminary storage, of from one to three months, might prove to be the secret by which the South could win back some of its lost cotton markets.

We have seen samples of so called "Nankeen cotton" grown in Virginia, which had the color and characteristics of Egyptian.

The Handling of Cotton.

The question of improved methods in the handling of American cotton, which shall be more satisfactory both to the grower and manufacturer, has assumed more prominence of late, and is likely to continue to be agitated. That the present methods can be profitably improved upon there is no room for doubt, and those which have worked successfully in any other country are worthy of consideration on our part.

The American planter will find it worth his while, we think, to carefully look into the manner in which Egyptian cotton is grown and handled, and in fact the whole systematic method of supply. The planting and picking season in Egypt is about the same as in the United States. Picking commences in September and October and the large dealers have their own ginning centres to which cotton is brought by camel from the various districts. The saw gin, which is responsible for so much injury to American cotton, is quite unknown in Egypt. English knife gins alone are used, which certainly accounts for the clean fibre. From the interior points the cotton is sent in large hydraulic pressed bales, which are again opened, re-examined and selected in Alexandria, and then re-pressed under a much higher pressure for shipment. It will thus be seen that the cotton is twice inspected and selected before shipping, so that the chance of any variation in a shipment is very slight. We are told that the cotton is baled in powerful presses at the rate of from 40 to 60 per hour on a single machine. Each bale weighs about 750 pounds gross, covered with burlap and bound with 11 hoops. Cotton is sold on its net weight, the tare of 22 pounds being deducted from the gross. There is seldom any question regarding grade, a fact without doubt of no little importance to manufacturers who find it necessary to sample from different ends the American cotton entering the mill.

Stretching and Finishing Fabrics without the Use of Pins in Selvage.

Quite a simple and effective arrangement for stretching and finishing textile fabrics is coming into use, adapted to those cases in which the material is stretched by a tenter frame, and then delivered to and subsequently dried by heated rollers. In this improved arrangement, the tenter chains are provided with a lower fixed jaw and an upper hinged jaw, operated by a spring, causing them to grasp the selvages of the fabric between them, so that the clips will retain it until they are close to the first drying roller, the upper spring jaw of the clip being operated from the under side.

To accomplish this the upper jaw of each clip is furnished with a downward extension or arm which may be operated as the chain moves forward by fixed striking parts, or cam surfaces, or groves secured to the framing, so as to open each clip as it reaches a certain point or points either for receiving the fabric or delivering it to the drying rollers.

If desired each link may have two clips, the upper jaws of these being supplied with independent studs for raising, so that less of the selvage is released by each, and consequently there is always less space between the next retaining clip and the first drying roller.

This plan enables the material to be stretched and dried without damaging it by the pins hitherto used.

Some Interesting Facts About Jute.

For the Textile World.

Jute is principally grown in the northern and eastern districts of Bengal, and to some extent in the central districts.

It grows on almost any kind of a soil except a gravelly one, and is most productive on a rich clay or sand. The finest qualities are grown upon the higher lands, where rice and tobacco are used for the rotation. The coarser and larger qualities are grown upon the mud banks and islands formed by the rivers.

When the crop is to be raised on low lands, where there is danger of flooding, plowing begins earlier than on the high lands. It usually commences in November and December in the low lands, and elsewhere in February or March.

The soil is plowed four or five times, the clods pulverized, and at the final plowing, the weeds are collected, dried, and burned.

No special attention is paid to good seeds, nor do cultivators buy or sell their seeds. In the corner of the field, a few plants are left to ripen and produce the seed that is sown broadcast the following year. The sowings, according to the position and nature of the soil, begin about the middle of March and extend to the end of June. The time for reaping the crop depends entirely on the date of sowing, the season commencing with the earliest crop about the end of June and lasting until October.

The crop is considered to be in season whenever the flowers bloom, and to be past season whenever the fruit appears.

The fibre from plants that have not flowered is weaker than that from those in fruit; although the latter is wanting in gloss and is much coarser.

The average crop of fibre per acre is over 1200 lbs., but this varies considerably, under some conditions reaching as high as 4000 lbs., and under others going as low as 250 lbs.

The system employed by the natives for extracting the fibre is the same old method of retting in pools of stagnant water. In some districts, the crop is stacked in bundles for two or three days, to give time for the decay of the leaves, which discolor the fibre in the retting process. In others it is immediately carried off and at once thrown into the water.

In some districts the bundles of jute stems are submerged in the river, but the common practice is the use of tanks or roadside pools.

The length of time required for retting depends upon the nature of the water, the description of the fibre, and the condition of the atmosphere, and it varies from two to twenty-five days, and the tank has to be visited daily to ascertain if the fibre has begun to separate from the stem. This period must not be exceeded, otherwise the fibre becomes rotten and almost useless commercially.

The bundles are made to sink in the water, by placing sods or mud on them. When the proper stage has been reached the retting is rapidly completed.

The laborer standing up to his waist in water, proceeds to remove small portions of the bark, from the end next the roots, and grasping them together, strips off the whole from end to end without breaking either stem or fibre.

Having brought a certain quantity into this half prepared state, he next proceeds to wash off, which is done by taking a large handful, swinging it around his head, dashing it repeatedly against the surface of the water, and drawing it through the water towards him so as to wash off the impurities; then with a dexterous throw he spreads it out on the surface of the water, and concludes by picking off all remaining black spots. He then wrings it out so as to remove as much water as possible and hangs up on lines to dry in the sun.

There are in India 26 jute factories, 8200 looms, and 162,000 spindles, which give employment to 62,000 persons.

They are almost exclusively employed in the manufacture of gunny bags or cloth trade, a few only doing business in cordage, floor cloth or other manufactures.

Origin of Fabric Names.

In the hurry of American business life, few people take time to study the derivation of the names of the stuffs which are daily passing through their hands. Some of these are very interesting, and a few are here given:

Damask was originally applied to fine silken fabrics, first made in Damascus, but is now applied to any kind of a fabric woven, figured with a warp and filling face satin weave used alternately.

Bombazin, from *bombyx*, the silk worm; satins from Zaytown, in China; calico from Calicut, a town in India, the fabric having first been brought from there by the Portuguese, in 1498.

Muslin, named from Mossul, a city near the site of ancient Nineveh, long celebrated for the fineness of its textile manufactures.

Bolting cloth, from *Bolter*, a sieve; this fabric having first been made to sift flour through.

Alpaca, from the alapaca goat of Peru, an animal of the Llama species, whose hair is used in the manufacture of that fabric. Buckram, from Bokhara, in Tartary, where first made.

Canvas, from satin *cannalis*, meaning a hempen cloth. Holland linen, from Holland, where first made.

Taffeta, from a street in Bagdad; cambric, from Cambray, a city of French Netherlands, nankeen, from Nankin; gauze, from Gaza; baize, from Bajae; dimity, from Damietta, and jeans, from Jean in Spain.

Drugget is derived from a city in Ireland, Drogheda; flannel, from the Welsh *grolanen*, which means simply woolen; corduroy, from the French *corde du roi*, which means the King's cord.

Duck comes from Torque, in Normandy; kerseys from the village of Kersey, in Suffolk, England; mohair, from *mojacar*, an Indian word; shawl, from the Persian and Hindustanee *shal;* selesia, from Silesia, Germany, where first imported from; saxony, from first having been made of Saxony wool; Osnaburg, first made in a province of Hanover of that name.

Serge, from the Spanish Xerga, a woolen blanket; diaper, from the Greek diaspron, meaning figured; velvet, from the Italian *vellute*, wooly.

Bandanna is from the Indian word to bind or tie, because it is tied in knots before dyeing.

Chintz, from the Hindustanee, where it signifies spotted.

Delaine from the French "of wool;" fustian, from Fostat, a city of the middle ages, from which the modern Cairo is descended; blanket, generally said to be named after Thomas Blanket, the first person to weave this cloth, is incorrect; he lived in 1340, while in Palsgrave's Book on the French language, written in 1512, an old monastic rule is mentioned, dated 1152, where blanket cloth is referred to in French by Blanchet; consequently the name evidently came from absence of color.

Flax.

It appears from a report of the U. S. Consul at Rotterdam, that the cultivation of flax in Holland has fallen off, both in acreage and produce per acre, the total decline in the last five years amounting to forty-four per cent. The seed, as well as the fibre of the flax plant, is saved and utilized in Holland. This flax is used in the manufacture of the finest description of linen and damask, and is extensively employed in continental, British and American thread making.

The decline in the industry is attributable to unfavorable seasons, with consequent inferior quality of crops, unremunerative prices, high taxes and high ground rents, with which suitable flax land is encumbered.

—J. C. Stott, formerly of Newburgh, N. Y., has accepted a position as overseer of spinning with the J. R. Montgomery Co., Windsor Locks, Ct.

—S. E. Talpey is now employed at the Lippitt Woolen Co., in Woonsocket, R. I. Mr. Talpey is one of the most capable men in the trade.

—The Troy Blanket Mills, of Troy, N. H., have started four Picker Feeds of improved construction, built by Geo. S. Harwood & Son, Boston, Mass.

WOOLEN DEPARTMENT.

Estimating Cost of Goods.

Requests come from all over the country in regard to estimating the cost of goods; people want a rule or a system to go by, and that is not all they want, either, for they ask for an invariable rule, and it is utterly impossible to have such.

In the first place, the locality of the mill is an important item in the cost of a piece of goods; anyone can readily see how a mill, which is a long distance from the markets, cannot produce the same fabric, for the same money (or cost) as the mill which is situated, either in the markets, or in close vicinity to them. The distant mill has the extra transportation on its raw material to add to the cost.

Then again the materials employed, in different localities, make a difference in the cost: for instance, a cotton mill, situated in the cotton growing district can buy cotton without freight charges added, and consequently cheaper than a Northern mill. So, to, in woolen goods; if two manufacturers are making a line of goods using territory wools, and one of them is in New England, and the other in Iowa or Wisconsin, it naturally stands to reason that the manufacturer in the West can produce the same line of goods as the manufacturer in the East somewhat cheaper. This is shown nearly every season when the eastern lines come to compete with the western goods such as the Beaver Dams, Varibos, Reedsburgs and Clintons, etc.

From the foregoing explanation it will be seen, how necessary it is to always take into account the transportation changes, when buying stock for a certain class of goods at a set price.

A thorough knowledge must be had of the prices of the various materials used, and the exact proportion of each required must also be kept account of.

To obtain a correct account of the cost of operating any plant, returns should be made either weekly or monthly of the quantities of the various priced materials. A record should also be be kept of the amount of cloth of either one or several kinds turned out since the last report, and in this way the amount of stock required for a given quantity can be ascertained.

Every overseer in a mill should be compelled to keep an accurate account of everything in his department, and report every week, so that a statement can be made out.

The cost of stock is almost always more than any other expenses, and being so, it is very important that it should be bought at the very lowest figure possible.

The motive power of a mill has a great deal to do in relation to the cost, because the expense of a mill using waterpower, steam or steam and waterpower varies greatly according to circumstances. A manufacturer in Northeastern Pennsylvania can buy his coal for almost half what the New Englander can, and consequently has that advantage.

Labor is also different in cost in various localities, being higher in large cities than in the country, because the cost of living is more in a large city.

First, in estimating the cost, the style of goods must be taken into consideration; that is the proper way of going at it, to get the nearest correct estimate. If woven cotton, woolen or worsted goods are the product, all figuring should be done with a yard as the standard. If the product is yarn the pound is the basis of all figuring.

After the average yards and weights have been obtained and the cost for the stock has been estimated, the cost of labor must be obtained, and under this head comes every department in the mill, pickers, carders, spinners, warpers, beamers, drawers-in, weavers, fullers,

finishers, etc. All wages paid come under the head of labor and must be included in the estimate, then add this cost of labor to the cost of stock; to this add all the other expenses and they will usually equal the cost of labor, and a great many manufacturers just double the cost of labor and put the whole item as manufacturing expenses.

If the goods are sold through a commission House, it is necessary to add 20 per cent. to the cost if the rate of commission is 7 per cent., and this will cover all incidental expenses in relation to selling.

When a manufacturer is making only one kind of goods, his expenses will not be so great as another manufacturer who takes a single order of that particular make; thus, if a certain manufacturer runs his mill on kerseys the year round his expenses are less than the manufacturer who is making fancy cassimeres and receives an order for kerseys. It is just the same in regard to cotton goods; one manufacturer runs on plain goods always, another on fancy goods; if either undertakes to produce the other's goods, it costs each one more than it did the original maker.

And this brings up another point in regard to the manufacturing cost; the number of styles is an important item and in fancy goods should always be kept down, and the best way to do this is not to make the poor sellers; one mill which makes a very celebrated line of cassimeres, every season after the orders are well in, cancels every style which has sold less than four pieces, and in this way the number of styles is cut down and consequently the cost.

Extra Filling.

INCREASING WEIGHT OF FABRIC.

For the Textile World.

It is often required to increase the bulk or weight of a fabric, and still not make double cloth. This is done by using an extra filling on the back; and the most important part of a weave for this extra filling, is its binding to the body of the fabric, so as not to show on the face where it is bound.

Fig. 1 is the four harness twill on which the fabric is woven, and it is required to have every other pick a backing pick. Fig. 2 shows an imperfect method of stitching this back pick into the face, as do also Figs. 3 and 5.

Individually, the picks in Fig. 5 are bound correctly, but the binding is in twill lines, which will, of course, be produced on the face, and make an imperfect fabric.

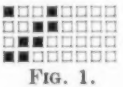


FIG. 1.

Imperfect

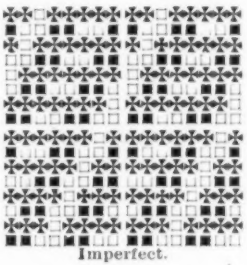
FIG. 2.

Imperfect

FIG. 3.

Perfect

FIG. 4.



Imperfect.

FIG. 5.

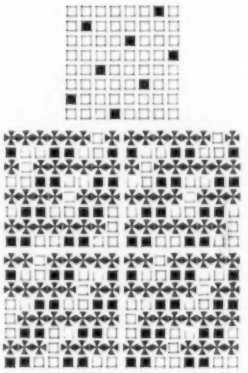


FIG. 6.

Fig. 4 shows the correct method of stitching the extra filling, and in Fig. 6 is shown the complete weave and stitching above. Fig. 6 is the plan of the intersections on the face; it will be

observed that this is a satin weave, which gives the most evenly distributed stitching possible.

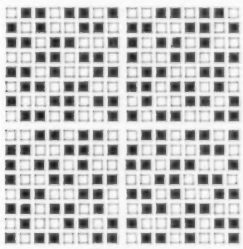


FIG. 7.

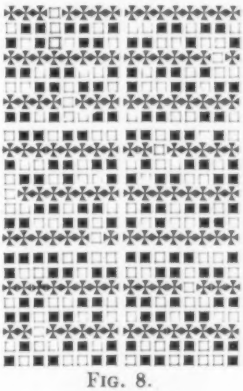


FIG. 8.

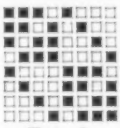


FIG. 9.

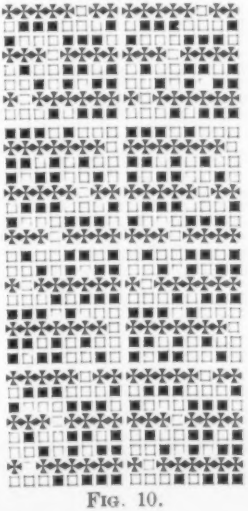


FIG. 10.

Fig. 7 is a granite weave arranged with two face filling picks to one back, which weave is shown in Fig. 8. It will be observed that the stitching is always on a warp thread which is down in the face pick preceding and following.

Fig. 9 is a fancy weave, backed two face filling picks to one back pick, and is shown in Fig. 10. Fig. 11 is a fancy granite weave backed in Fig. 12 one face, one back pick.

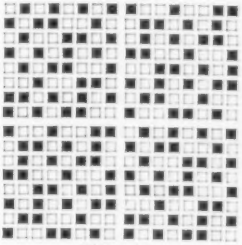


FIG. 11.

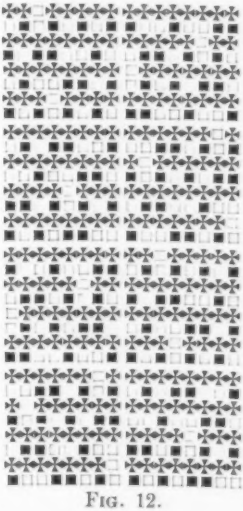


FIG. 12.

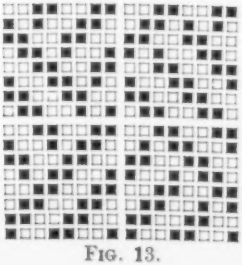


FIG. 13.

Fig. 13 is backed with one back filling pick to two of face, and is shown in Fig. 14. This back stitching is not according to any regular motive, and oftentimes weaves are required to back, which require the greatest ingenuity to keep the stitching evenly distributed over the repeat of the weave, but this must always be borne in mind.

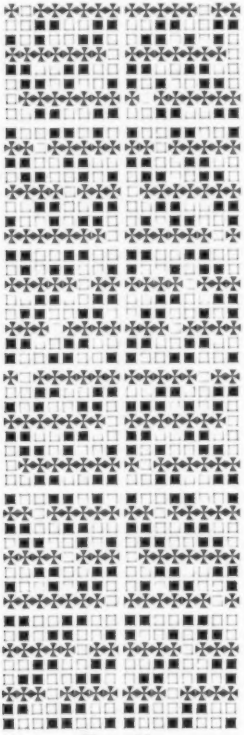


FIG. 14.

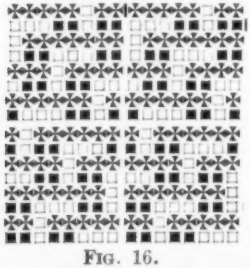


FIG. 16.

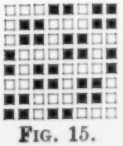


FIG. 15.

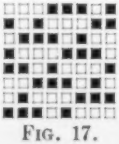


FIG. 17.

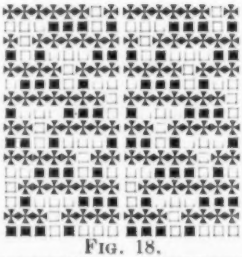


FIG. 18.

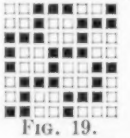


FIG. 19.

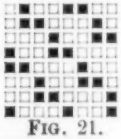


FIG. 21.

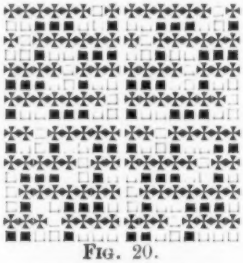


FIG. 20.

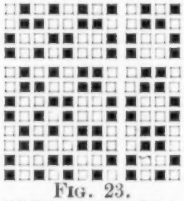


FIG. 23.

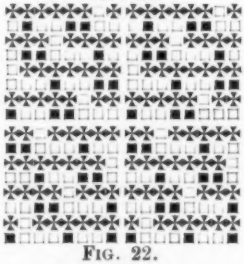


FIG. 22.

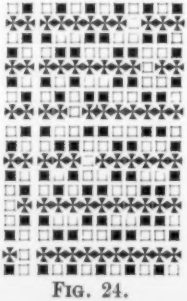


FIG. 24.

Fig. 15 is arranged for oneface filling pick to one back filling pick, the weave being shown in Fig. 16.

Fig. 17, Fig. 19 and Fig. 21, are arranged for one face filling pick to one backing pick, and are shown in Fig. 18, Fig. 20 and Fig. 22, respectively. Fig. 23 is arranged for two face filling picks to one backing pick, the complete weave being in Fig. 24.

These various weaves are shown, that a good idea may be obtained of how to back these weaves, and in designing this class of work, two things should always be borne in mind; first, to have the stitching evenly distributed, and second, to have the backing picks stitch on a warp end which is lowered in the preceding and following picks.

Uneven Goods.

IRREGULARITY IN WEAVING AND HOW TO REMEDY.

For the Textile World.

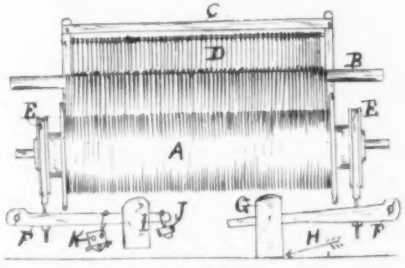
Irregularity in weaving often results from uneven yarns; sometimes, however, the loom is the cause, and frequently the cause of the unevenness may be traced to the let-off mechanism. There are now in use many different kinds of let-off motions; but the proportionate employment of patent let-offs is small when compared with the large number of looms which are still in operation with nothing but levers and weight to regulate the friction on the beam heads of the warp. Probably in a dozen years from now all looms will be fitted with patent automatic let-off devices. In fact, some loom building concerns are shipping their looms from the works all equipped with the very latest devices for evenly letting off the yarns of the warp.

Some of these new fangled arrangements work well, others do not. As the lever and weight system is the most common at the present day, it is well to investigate the cause of uneven weaving through the let-off, on the basis of that.

A drawing of the rear of the loom is shown in the sketch. The warp is designated by A, the whip-roll B, the harness C, the wires D, and the flanges of the beam E E. The iron strap may be seen which circles about the grooved flanges and is attached to the lower beam of the loom on the inside, while it is fixed to the lever F on the other.

So long as the levers are kept in proper form, and in proper relationship with the centre pin, the purchase will be right, and an even strain upon the straps follows.

When, however, the degree of slant is wrong, so that the lever is too low or too high, unsatisfactory results follow. The first thing to do, then, is to get the levers right. They should be straight out from the studs upon which they



pivot when the weights are on. The threaded nuts on the ends of the straps permit lowering and raising. Next the straps should be evenly covered with cloth. In some mills the straps are run bare, but the great majority of fixers put on a cloth covering. The cloth should be renewed about once a month; if not, it will become gummy, and the friction be irregular. The straps adjusted and the weights can be put on.

A uniform set of weights is usually supplied with each loom. But these become lost or broken in time, and the fixer or the weaver proceeds to patch up in some way. A weight of uniform size is represented by I in the cut. This weight does not appear to be sufficient, so the weaver ties on a box bearing at K and a picker ball at J. Such a method is very unreliable. The man who has charge of counting the picks in the weave room is confused by such a collection of weights, and in fact the whole thing is awkward.

The fixer should see to it that there are plenty of uniform weights about the weave room, and should insist that they be used. If the pick counter finds that a little more weight is needed so as to get in a pick or two more in the goods, he can then move the weight down a notch. But if the lever is tied up with strings and wires suspending all sorts of weights, it is hard for him to regulate the thing. Such a method of recklessly using weights, invariably results in uneven weaving. Furthermore, uneven weaving is readily produced when a too heavy weight is used, as shown by G at the other side of loom.

The weight has brought the lever down so that the former touches the floor occasionally, as indicated by H. Of course every time the floor is touched, less weight is felt upon the straps for the moment, and a loose place will be woven in the cloth. The matter can be temporarily fixed by raising the lever higher, but a small weight is the most desirable.

Care of the weights in a large weave room is no small job. Few mills have made it the particular business of any one to look out for them, but all hands have a chance at the business. Upon the fixer it seems to fall most heavily, however, so let him make it his business to have uniform weights and a proper adjustment of the weight levers on all the looms in his section, and the goods will come off more even as a result.

Shuttles.

Foreign journals describe an ingenious improvement in shuttles, by means of which a simpler method of threading the yarn through the shuttle eye is practicable, obviating the usual practice of drawing the thread through the eye by suction.

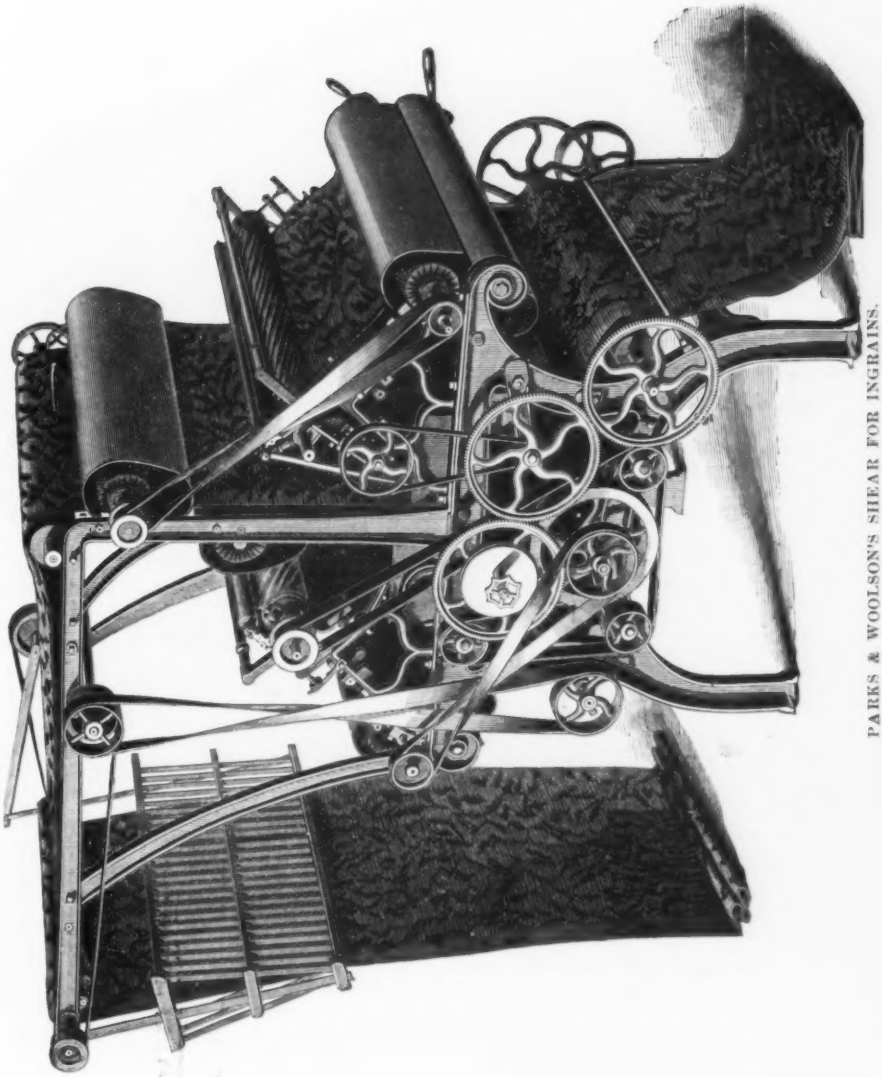
The arrangement consists in forming the shuttle eye of a piece of wire, with a loop or eye coiled or twisted in the centre, placed across the shuttle, in combination with a bridge piece, over which the yarn passes as it leaves the nose of the cop, and by which it is guided to the eye. The bridge piece is in the form of a slightly bent wire, immediately in front of the shuttle peg, to direct the yarn from the nose of the cop over the end of the shuttle peg to the eye, being also adjustable to regulate the tension put on the yarn as it passes from the cop; the eye wire is placed horizontally near the top or upper side of the shuttle.

The threading of the eye is effected by passing the yarn around the bridge piece, then over and around the eye piece, the thread slipping into the eye through the slit formed between the coils of wire.

This plan of threading is not only more expeditious than that ordinarily in vogue, but does away with the objectionable practice of drawing or sucking the thread through by the mouth.

The Parks & Woolson Carpet Shear.

We illustrate Brown's carpet shear for ingrain carpets, which is built by the Parks & Woolson Machine Co., Bennington, Vt. It shears both sides at the same time, and has two brushes which clean both sides of the carpets after they leave the cutters, making them ready to roll for the market. This shear is built on very heavy iron frames, and it has two sets of blades, with a brush to raise the nap in front of each



PARKS & WOOLSON'S SHEAR FOR INGRAINS.

set. The blades are of extra heavy selected stock, carefully tested. The brushes are filled with the best imported Polish bristles, and are thoroughly made.

One advantage claimed for this shear over others, is the rest which brings the goods up to the cutters in such a manner that there is no dodging of the fibre, as there is in the usual way of shearing with two sets of blades. These carpet shears are very rapid, and the builders inform us that in mill use they are shearing both sides of eight thousand yards of carpeting in one day, and doing most excellent work.

The Parks & Woolson Machine Co. are in the front rank of machine builders, and the excellence of their very extended line of cloth finishing machinery is well recognized in the trade.

M. A. FURBUSH & SON MACHINE CO. PHILADELPHIA.
MAKERS OF WOOLEN MACHINERY.
THE MURKLAND INGRAIN CARPET LOOM.

Wool Pickers, Cards for Fine Wool and Mixed Yarn, Cards for Gray and Double Reeled Carpet Yarn, Cards for Coarse and Fine Worsted, with Breasts, Lickerin Attachments or Cylinders only, Cards for Shoddy and Felt, Hat Cards and Roll Cards, Card Clothing, Balling Heads and Reballing Machines for Worsted, Blamire Lap Feeds, Attachments for making Knickerbocker and Spotted Yarns, Vibrating Attachments for Ring Doffers, Rubbing Motions for Condenser Cards with Rolls only, Aprons only, or with Rolls and Aprons in Combination, Floor Grinders with Traversing Emery Wheels or Emery Cylinders, Side Drawing Spoolers, Card Stretchers and Turning Rests for Cards, Self Acting Mules, Hand Jacks, Ring Twisters for Spools or Bobbins and Attachments to same for making Looped Yarn, Dresser Spoolers for Wool or Worsted, Sectional Warp Mills, Universal Warp Mills, Beamers, Heck Stands and Creels, Warp Dressers with two or four Copper Cylinders, Jack Bobbin Winders, Looms for making Carpets, Smyrna Rugs, Rug Weft, Blankets, Repps, Table Covers, Paper-Makers' Felt and Light Looms for Woolen Goods, Heddle Frames, Reels for Dye Tubs, Teasel Gigs.

THE American Napping Machine Co.,

Owns the Principal Patents

on Napping Machines, representing the latest French, English and American Patents.

Machines on exhibition and samples napped on application to any of the following offices:

DAVIS & FURBER MACHINE CO., Builders and Selling Agents, North Andover, Mass.

GEO. S. HARWOOD & SON, 7 Water Street, Boston.

C. J. JONES, Salesman, Mascher Street abv. Lehigh Avenue, Philadelphia.

H. H. HEAP, Treasurer and General Manager, Williamstown, Mass.

Davis & Furber Machine Co., North Andover, Mass.

WOOLEN MACHINERY.

American Soap & Washoline Co.,

Manufacturers of

Textile Soaps

For use in the Manufacture of

Cotton, Linen, Silk, Woolen, Worsted, Hosiery and Flannel Goods, also Soaps for washing Paper Makers' Felts.

We make a specialty of **Washoline**, a powdered soap for use in textile mills, which is meeting with decided success in many departments.

Office and Factory,

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THOS. C. KELLOGG,

SKANEATELES, N. Y.

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Clipped and packed to any desired size.

Teasels are grown, cured and packed on own premises.

New York Office, 96 & 98 Reade St.

A. H. KELLOGG, Manager.

Correspondence solicited. Samples free sent by mail upon application. Write for Price List No. 82.

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TEASELS,

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WM. W. KELLOGG,

SKANEATELES, N. Y.

AMERICAN TEASELS

High Grades a specialty.

Sample Orders Solicited.

Saxony Finish.

THE FASHONABLE FINISH FOR ALL WOOL GOODS, OBTAINED BY THE WET PROCESS.

For the Textile World.

To finish all-wool goods with a Saxony finish, so called, so that the full beauty of the finish may be brought out, they should full at least 3 hours and not shrink less than 3 1-2 inches per yard. This should insure a good, firm and well felted fabric, and one that will stand the necessary amount of gigging.

It is hardly any use to say much about the fulling of this class of goods, inasmuch as there is very little difference in this part of the operation, from what other goods require. One thing it is necessary, though, to mention, and that is, that after the goods are properly rinsed, and just before taking them out of the washer, the gates should be closed, and about three pails of a solution of Fuller's earth added. Let them run in this for about ten minutes, and rinse fifteen minutes more. After taking them out of the washer, roll them up tightly on rolls, lay them down flat and let them lay over night. The tighter the goods are rolled, the evener they will drain.

When taken off the rolls in the morning, they are immediately ready for the gig and in very good condition as to moisture. It will be observed, that the rolling of the goods, if properly performed, will save the labor of extracting them.

It might be argued, that if the goods were taken from the washer to the extractor, and thence to the gig, it would avoid the rolling, but there is no process which will give that smooth appearance to goods, as the rolling and letting them lay over night. It takes out every wrinkle, and the goods go on the gig in the very best possible shape.

A double cylinder gig will be taken for the illustration; put the goods on in sets of four pieces. The Saxony finish is a close finish, but not like a worsted finish. Whatever nap there is left on the goods, is to lay so that it is impossible to feel any spring, but all the threads must be plainly visible, not obscured by felt, but round and plump and clean. First, commence with old work on the gig, and fill both cylinders, running each in a different direction, by means of the gears at one end of the cylinders. Run the goods thus, for about half an hour, clean slats and give another half hour; by this time the teasels have become so moist they are of very little use. To remedy this, turn every other one, then take out every other one, giving for each cylinder ten old slats, and replace those taken out with ten slats of a better grade.

Run these half an hour, clean them, and run another half hour; then turn them over and repeat the same operation, that is, run half an hour, clean and run half an hour more. Now turn and reverse the slats in the first cylinder and run in the bottom gear; turn the top gear of the first cylinder out, so as to disengage it from the gear of the second cylinder, but keep it engaged to the bottom gear. This makes both cylinders run in the same direction, and after turning the slats in the rear cylinder, to give a dry and effective side to the goods, they are ready to start up again, and run thus an hour, cleaning the slats at the expiration of half an hour. Just after cleaning the last time, take a watering can with very fine holes, and sprinkle the goods evenly and generously, and at the end of half an hour take the set off and rip out the middle seam, thus making two sets of two pieces each; take these to the wet gig, give them four runs up and down with a generous supply of water, both in the box at the bottom, as well as from the sprinkler pipe.

They are then nicely folded off and the remaining seam taken out, thus separating all the pieces. If the folds are made small and even, take one end and wrap it around the piece and lay it in the extractor, one piece on each side, that is, if the extractor is large enough, and extract the goods thoroughly, then dry them.

Every dryer ought to have a brush attached to it, so as to straighten the nap properly before drying, for even if most of the nap is removed, the practised eye will soon detect those places where the nap was not properly straightened before drying.

After drying, the goods are properly back burled and then given a run or two on the brush, with lots of steam. Formerly, a dry beater gig was used for this purpose, but the brush with an application of steam is found to be more satisfactory.

They are then ready for the shear, and while they are to be gone down rather fast, it pays to give them lots of runs after they are low enough; care must be exercised to have them sheared even from sides to centre, so that there may be no shades from side to side or centre. The more runs it is possible to give the goods, the better they are apt to look when finally inspected. For any goods that have a trace of nap left on them, cannot be sheared too even.

This water finish gives the goods a feeling which cannot be obtained in any other way. Care should be taken, however, that the wet process is not commenced too early; while it is advisable to wet gig the goods in good shape, this should not be done until they have been properly gigged, that is, not until all the felt has been broken up and the fibres raised, leaving the threads plump and clean. The chief points of merit of this finish are, that they will not catch lint easily, the nap will not rough up and they will have that moist feeling which is so very desirable an attribute of well finished woolen goods.

The Brush in Finishing Processes.

For the Textile World.

Of late years the changes that have taken place in the general grades of finish in woolen cloths have had the effect of bringing the use of the brush into ever increased prominence. While in the past it was considered quite enough to resort to the use of the brush once during the series of processes, and that just previous to the pressing, nowadays the demand is such that the finish is not really perfected until the brush has been brought into requisition three, and even four and more, times throughout the department and in its various stages of advancement.

The use and value of the brush depends altogether upon the nap which is present on the goods to start with. The brush cannot make a nap. The brush can enhance the beauty and add to the attractiveness of a nap already formed, but it can never make a nap if it has not been previously worked up in the essentially napping processes. This is the first thing for the finisher of the finer grades of cloths to remember when he is considering his brushing operations. The brush is wrongly used where it is left to raise the nap which should have been attended to by the gig, but the brush is rightly employed when it is used to smooth and straighten and soften the nap already raised.

The use of a brushing process is most common in connection with the two processes of shearing and pressing, and it is here that the process has its best results. Occasionally on certain grades of cloths the brush is advantageously used after the cloth leaves the extractor and just previous to its drying, but this only happens on napped faces which are not going to be treated with a very rigorous shearing. The cause of this lies in the fact that if a nap is dried in a roughened condition, and then little or no shearing ensues, the nap will inevitably remain roughened and dishevelled all through the round of processes. But if a brushing is undergone, all the roughening consequent upon the extracting is removed and the drying then turns out a cloth with a smooth and beautiful face, even though the shearing is slight.

A very similar effect is brought about by means of the brushing which follows the steam lustering of certain fine grade cloths. The steam lustering is very apt to displace the nap, and the force of the penetrating water and steam acts in such a way on the face fibres that they could

not possibly be made to assume an even position in any of the later processes unless they were smoothed out and softened at this part of the process before it is too late.

In like manner it is customary to brush between the pressing and the steaming, and this brushing has a similar effect. It lays the fibres in their proper place and position on the face of the goods, so that when the steam is forced through the cloth they may be in such a condition to take its action as nearly uniform and as evenly as possible.

Now while the foregoing is one of the reasons why the brush is used, there are other reasons quite as important. In all the processes mentioned, particularly in steaming, pressing, and often too in wet gigging, the cloth leaves the operation with the nap smoothed and literally pasted down to the body of the cloth. In the pressing and in the steam lustering, this is especially observable, and it furnishes an effectual prevention to anything like a soft and desirable finish. Now the slight action of the brush thoroughly, and, perhaps, if need be, repeatedly applied, operates in an opposite direction and raises up the fibres that have been pasted down so that the air can permeate the nap, and later processes, if there are any, may be enabled to work upon the nap and fit it for the finished condition.

The brushing upon the pressed cloth must be accompanied with steam in order to have the full extent of effect in this respect, and it is also sometimes a very good scheme to use the steam at different stages of the shearing.

Another reason why the brush is employed, is to so smooth out the nap that it will tend to conceal, to a certain extent, the weave of the cloth. Where this particular effect is desired in the finish, there is no better way to attain it than to use the brush thoroughly after the nap has once been well raised by the gigs. The nap that is once smoothed out by the brush when the warp is wet, will hardly ever fail to retain the position imparted by the brush. If a wet fibre is dried, it always tends to retain the position which it held while wet. If, then, a wet nap is brushed thoroughly, or if a dry nap is brushed with steam, the fibres assume a certain position, and that position is supposed to be the one desired, and then when they are dried they tend to retain the position given to them by the brush. This is the very thing wanted and this is one of the main results which commends the frequent and thorough use of the brush while the nap is wet.

In brushing with steam, it is well to remember that it is quite possible to use too much steam. An excess of steam is bad where it happens to come on an easy felting stock, for it is too apt to give occasion for a little shrinkage, which, after all the finishing processes are complete, does not require to be very marked in order to affect the ultimate appearance of the goods. This caution then is in order, and the steam must be carefully regulated to suit the class of stock in hand as well as the finish desired.

In conclusion, we are safe in remarking that on the finer grades of cloths which require brushing at all, it is almost impossible to over do this particular part of the work. It is really remarkable how much of this sort of treatment a cloth will stand, and how much better the results are where the brushing is not stinted. Every time the brush is applied we are safe in counting that it will add one point at least to the desirability of the finished feel and appearance of the cloth. "SPECTATOR."

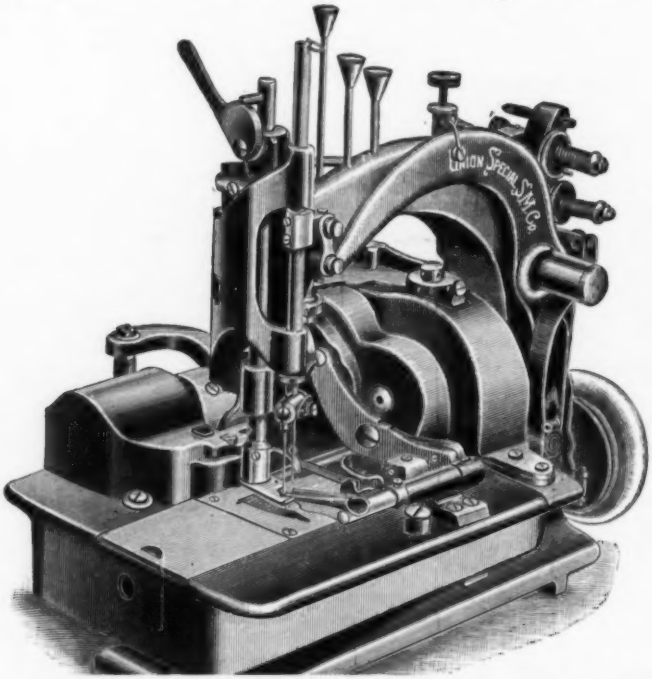
Beswick & Kay's New Rubbing Motion.

In our September number we described at some length the new rubbing motion patented by Mr. Edward Kay, of Philadelphia. Inquiring of Messrs. Beswick & Kay as to the result of more recent tests of the motion, we learn that it is giving the fullest satisfaction and enabling the firm to produce stronger and smoother yarn than they ever did before. The simplicity of the attachment is apparent at a glance and its light running and positive motion are features that commend it to the operator. Noise and vibration are avoided, as well as eccentric uncertainty. Beswick & Kay are placing them in their works and removing the old style, and a number of other mills are adopting them. For fuller details we direct attention to page 49 of the September TEXTILE WORLD, or to Beswick & Kay, 25th and Callowhill Sts., Philadelphia.

SCOTT & WILLIAMS,

ESTABLISHED 1865.

Builders of all kinds of Knitting Machinery.



New Selvedging Bar Stitch Machine.

FOUR PROCESSES AT ONCE.

Selvedges the Edge, makes and attaches the Trimming and inserts Ribbon at one operation.

RUNS AT SPEED OF 2000 STITCHES PER MINUTE.

The United States Circuit Court for the Eastern District of Pennsylvania has recently issued a decree sustaining our Patents in this machine and on the Trimming made by it, and has granted an injunction against manufacturers in Philadelphia who were using an infringing machine.

The attention of the trade is therefore directed to this decision, as we shall proceed promptly against any others who violate our rights by the manufacture, sale, or use of infringing machine or trimmings.

Patented, United States, Dec. 25, 1888.
Patented, United States, Aug. 20, 1889.
Patented, England, January 1, 1889.
Patented, United States, Sept. 3, 1889.
Patented, United States, Nov. 26, 1889.
Patented, Switzerland, May 17, 1889.

Office: 2077 East Cumberland St., Philadelphia.

SHOWROOMS: 6th and Arch Sts., Philadelphia, Pa

KNITTING DEPARTMENT.

The Knit Goods Situation.

The general improvement in every branch of the knit goods business has been very marked during the past month and from all indications it will continue.

In the jobbing, commission, and retailing branches a slight intermission must of course result from the taking of the inventories in January, but this can hardly be looked upon as a cessation of work, and as far as the mills are concerned will not be at all noticeable.

The Republican success in the general elections is looked upon by all in the trade, no matter of what party, or of whatever tariff convictions, as a gurantee of no further disturbance from tariff legislation; at least, as the great majority of the manufacturers are for higher duties they feel confident that, should the new Congress take up the question after it assembles in March, whatever is done will be more in their interests and will be accomplished with less delay than the legislation enacted by the present Congress. We find the general sentiment, however, to be more in favor of complete cessation of tariff legislation.

Without attributing too much to the result of the elections, for a decided improvement was noticable before November it must be admitted by every one that confidence is now completely restored in manufacturing and all other business circles.

Could there be a better proof of returning good business than the establishment of new mills, the enlargement of old mills, the resumption of idle mills, or the positive evidences of active reaching out on the part of manufacturers by bringing forward their pet schemes, long held in abeyance, to improve and facilitate their business? These are the strong proofs everywhere about us. Old established mills put in new machinery only on the justification of improvement in business. Idle mills are apt to resume operations only on the justification of orders. Are experienced manufacturers going to erect new mills in the face of an industry going to ruin?

The Textile Advance News of November 17, publishes authorative information of several new knitting mill projects that will undoubtedly be speadily advanced to completion. We note in particular one 24-set knitting mill for the South, one for the Cohoes district and the important enlargement by a firm of Pennsylvania hosiery manufacturers, whose new mill is not long over two years in operation. Other issues of the same report, immediately preceeding and following, are equally strong in news carrying in its wake "a power of argument" full of encouragement.

Spring business is well advanced and the mills are generally well supplied with orders.

Prices are fairly remunerative; with many they are even entirely satisfactory, though complaints as to prices are heard from many quarters. After so long a run of poor business, jobbers found agents generally ready to take large orders, insuring their machinery a continued run at really very low prices. Other manufacturers, however, were induced to continue to run on heavy weights at more profitable prices by buyers finding their stocks short on heavy lines. Manufacturers inclined to go on with light weights are now, however, finding fair prices.

The orders booked for spring are much larger than at this time last year, and there is every indication that the demand will continue with regularity and that prices will become more firm.

The cheap, as well as the fine lines, in balbriggan goods form the largest part

of the orders booked. There are really too few fine goods, of whatever class, on the market. There promises to be a much greater proportion of business done in ribbed goods this season.

Commission and jobbing houses are having a very active trade in heavy weight underwear and in all goods for winter wear. The stocks are quite low throughout the country with manufacturers, jobbers, and retailers, and many buyers, owing to the recent increased demand, have shown much uneasiness. They have, in many instances, induced manufacture to prolong their run on the heavy lines they were short of.

The demand is particularly strong from the West for heavy weight goods.

On hose and half hose the domestic mills seem to be well employed. Prices are not satisfactory, but improvement in this respect ought to set in at once, and indeed must, for prices have advanced in Chemnitz and are very steady.

Domestic woolen hosiery has been in better demand but manufabturers have not, as a whole, entered boldly enough into the field.

After January 1 the wool manufactures' schedules of the tariff become operative. The manufacturers of woolen knit goods, however, are prepared to meet the new order of things, as the cotton manufacturers have successfully met it.

The orders now booked by the manufacturers of woolen hosiery were taken on the basis of the woolen clauses being operative, and prices, we confidently believe, will show no further weakening.

We have recently seen drawings for a large knitting mill to be erected in one of the old Southern states that will be one of the very largest in the country, and which, when once in operation, must command attention. There are other new knitting mills going up in the South, and there are numerous mills in operation there to-day which have been established only within the last few years. The South has been thought of principally as a competitor in the field of cotton manufacturing; it is now developing prominence in the knitting industry. Northern knitting mills have been sending their products South. Northern mills have the laurel wreath; European mills did have it. Northern mills must look to their laurels; the South reaches out for them. Southern mill men have entered the field of competition with enthusiasm, and will force the same investigation into the South's possibilities in this line that they have commanded from cotton manufacturing interests. The new Southern manufacturers have broken the solid South of the Democracy; they demand higher protective duties. They have renounced, as one son of the South, devoted to manufacturing puts it, the "*ante-bellum* logic;" they propose to follow New England manufacturers in making for the home market, and as an indication of their vigor propose to lead the textile manufacturers of the country in reaching out for the trade of South American Continent.

Practical Talks on Knitting.

No. XII.

HINTS ON WASTE PRODUCTION.

The production of waste in the hosiery mill is one of the principal evils of the day. The ordinary operative does not realize this, and so waste continues to be made.

In conversation with a well-known knit goods manufacturer, recently, the writer was told that a large percentage of the profits of this man's mill was being consumed by excessive waste. The profits on hosiery manufacture are small, so that when the waste for the month is little larger than it should be, just that much more money is prevented from going into the manufacturer's pocket. Indeed, it frequently happens that the waste account runs so high that the actual cost of the goods is eaten into, in which case the mill proprietor is to be sympathized with. It seems to be utterly impossible for the knitter to realize the value of yarn in the same light the owner does. A damaged bob-

bin of yarn is cast aside, several yards of yarn are sometimes ravelled off and thrown into the waste box, the work is allowed to run off and several ounces of waste produced in starting again. All these are considered a matter of course by the operative. The mill owner, however, looks at it in a different light Let us look at some of the most prolific sources of waste in the knitting room and see if they cannot be reduced some.

"DROP STITCHES."

A frequent cause of seconds, and consequently waste, is the drop stitch, for these need considerable mending in the finishing room, resulting in loss of time and the consumption of yarn, as well as producing a bad place in the goods, thus necessitating ranking it as a second, and seconds have to be sold at a loss. A rough sinker nib, a needle set loosely in the lead, or a needle with the point of the beard worn are the three principal causes of dropped stitches.

Where a stitch is dropped frequently, so as to bother the operative, the defect is usually complained about early, and the fixer discovers the cause and fixes it. But the great losses occur when the needles drop a stitch only at long intervals; this does not worry the operative very much and she allows the machine to run on day after day, perhaps for months, making goods with an occasional dropped stitch, before the trouble is traced from the finishing room to the machine. The knitter does not realize what trouble and expense she is causing by letting it go. Even if the needles drop but a stitch an hour, they should be attended to. The boss who convinces the knitters of the value of watching all these little points, and reporting the same, is the best man and will save waste and seconds for his employer.

"THROW OFFS."

Every knitting operative is more or less familiar with troublesome "throw offs." Waste of yarn, seconds, and one or two other troubles result from these. They can be prevented. A frequent cause is the improper adjustment of the feeder. This should be set close to the needles, yet not allowed to contact with the latches. If set too far away, throw offs will be numerous and waste and loss of time will follow. Sometimes the hole in the feed will have become worn, and this gives too much play, and the yarn will therefore miss once in a while. But this does not happen till the machine has been run long enough to produce wear of the parts. If the knitter tinkers with the tension and reduces the friction too much, there will be misses, and hence throw offs. This, of course, can be fixed by simply tightening the tension parts a little.

But causes other than those connected with the machine produce throw offs. Kinky yarns will every time. Steaming is a good remedy, but steaming is prohibited in some classes of goods. The only thing to do in such case is to have the spinner reduce the twist. The hard, wiry twist causes the yarns to kink, and these kinks guide the yarn out of the line with the latches and throw offs happen. Mispressed needles, where spring needles are used, will cause throw offs.

"CUTS" AND "PRESS OFFS."

If the tension on the yarn is too little, throw offs occur, whereas if the tension is too severe, equally bad results follow, for the yarn will produce "cuts." Cuts and press offs are the cause of considerable waste in the knitting room. They also produce many seconds. But then there is no machine nor process that is perfect. All operations, even if performed on the best of modern machinery, require attention and skill to work them. The knitting process is no exception. If a thing is set one way a certain trouble results. If set another way some other defect arises, etc. But this should not discourage the knitter or the boss. Next to perfection can be attained if all hands keep an eye open and are careful.

Lint is caused by the constant friction of the yarns in the guide, and this often collects in the hole and hinders the yarn, and "cuts" result. A cleansing of the guide fixes this. Roughened sinkers are frequent in machines using these,

and as cuts will be caused by rough sinkers, the parts should be smoothed with emery. High speed is resorted to in these days, and sometimes the mill boss speeds up a machine beyond its capacity. Waste, cuts and all sort of trouble will occur if such is done. No machine should be run faster than the speed set by the builder. These points noted and the waste account will be reduced.

WASTE ON THE FLOOR SHOULD BE CARED FOR.

However careful all hands may be, there will be some waste made. It cannot be helped. Some of this will at times find its way to the floor. Pieces of yarns on the floor seem to be of little consequence to some, for they will step upon the threads, roll them about in dirt and grease, and never think the broken pieces worth picking up. Clean waste yarns are, of course, of more value than dirty, but even the worst of waste, especially if it be wool or silk, has a market value, and simply because it is kicking about on the floor does not reduce its worth. We suggest, therefore, that it is advisable to instruct all hands in the work of keeping the waste yarns from beneath their machine. A box should be provided for same. Again, no hand should be allowed to use a handful of valuable wool waste to clean greasy machinery. A green hand will frequently do this. Dirty machine oil is hard to wash out. Besides, it causes the wool to heat and spontaneous combustion may result. If the hands are supplied with cleaning brushes or machinery wipers, the cost of the brushes or wipers will be saved a dozen times over each year, in waste kept clean.

(To be continued.)

Good Business.

The most gratifying reports come to us from the knitting machine builders over the country. Such firms as Scott & Williams, Nye & Tredick, Brinton, Denny & Co., Branson Machine Co., National Automatic Knitter Co., Standard Machine Co., Keystone Knitting Machine Mfg. Co., and Arthur Wrightson, all of Philadelphia recently informed our representative there, that the present season was full of business and in some cases orders were placed far ahead.

The Knitting Frame of 1850.

Continued from October.

In my last article on the knitting frame of 1850, I alluded to the original power frame that was operated by Egberts & Bailey. It was a large, clumsy, slow operating, flat frame, with jacks and sinkers, also the spring bearded needle, making one or more sections of cloth in width, and each time the presser bar went across, it made a terrible noise, which could be heard at quite a distance. The takeup for the cloth consisted of a heavy cumbersome weight, which was suspended by hooks inserted in the cloth, until it nearly reached the floor, then had to be changed. Whether this was patented or not, I don't remember.

A shaft was attached to the width of the frame, with a small gear and ratchet on one end of it, and a wood roller four or five inches in diameter for each section, with a gear and ratchet attached to the roller, so each section, if more than one, could be adjusted to have an even strain or tension on the cloth, in case the yarn should vary, as was often the case in those days.

Between the cloth roller and the needle

bar, about two-thirds of the distance from the cloth roller, was a revolving shaft, about one and a quarter inch diameter, attached to the frame, so the cloth was run over it and weighted between that and the needle bar with pieces of iron turned for the purpose, which were laid in the cloth, as shown in cut, to give the proper tension.

The Bailey rotary frame, which was patented Feb. 24th, 1852, had the bearded spring needle, two in one lead. The cloth takeup was accomplished from the under side, and the strain on the needles was severe at times, and kept a knitter busy when the yarn was heavy and uneven, as the takeup was operated by each revolution of the cylinder, and had to be very nicely adjusted. I have seen a whole cylinder of needles destroyed by neglect of this matter.

Fuller & Safely, a concern in Cohoes whom I knew well, had a large foundry and machine shop at this time, and built the Bailey knitting frame on a royalty, paying Bailey four dollars for each thread run, which was generally four or six, unless ordered otherwise. They made a great many machines, sending them to different places in the New England States, as well as in New York, and one of the largest and most successful manufacturers in Cohoes used those machines and nothing else for many years, and I don't know but he is using some at the present day, for the face of the cloth that was knit on these frames excelled all others. Often when I have been in the market in New York and elsewhere, I have picked out the goods made on these frames. They were different from the original Egberts & Bailey frames. All the original builders of these frames are dead. Mr. Egberts died March, 1869, aged 78; Mr. Joshua Bailey, January, 1875, aged 75; Mr. Timothy Bailey, August, 1882; all natives of the State of New York.

The rotary upright frame had its beginning in this old mill, which Mr. Fowler ran for four years, previous to selling it, in 1855, to J. G. Root of Albany, N. Y., on account of bad health. Clark Tompkins, father of Tompkins Bros., Troy, N. Y. (who are still engaged in the manufacture of the rotary upright knitting frame), spent many weary hours studying and planning the upright machine, with its takeup. As I was setting up some machinery there for Mr. Fowler, I asked what brought that man here from Troy so much, and why was he allowed such privileges among the knitting frames, and then I learned that he was planning a new style of frame for Mr. Fowler. This was patented July 3, 1855, and Sept. 18, 1855; Tompkins & Johnson, of Troy, secured their first patent, and others followed. Mr. Tompkins died in California in 1876.

From the date of the Bailey patent until the Fowler patent was granted, there were only twenty others issued for all kinds of knitting looms, frames and hosiery machines, and one of these was granted to G. Jackson of Cohoes (who is alive as far as I know), Aug. 22, 1854, for a new idea of a knitting frame or loom, which made a beautiful fancy stitch, differing from all others in those days, and quite a novelty, but for some cause or other which I never knew, it did not prove a success. I had a conversation with Mr. Jackson a few months ago about this frame, and he told me that he could find one not far away.

In the next four years there were 31 patents granted, for all styles of knitting machines. Among these, particular mention should be made of another party, I. B. and W. Aken of Franklin, N. H., who have secured more patents for their latch needle knitting machines than any other party or parties I can find, beginning with their first patent issued May 22, 1855, and continuing improving and securing patents nearly up to their demise, which occurred not long ago, showing that with all the improvements which have been made since 1850 (which are numerous), "still there's more to follow."

This reminds me of what a Frenchman, Julian Guien, told me in 1857, while he was knitting in the Watervliet Mills, in Cohoes, for Adams & Fairbanks. He said that if the company would furnish him with the necessary appliances that he wanted, he could make

any desired pattern they could give him. He brought the Belgian knitting machines with him, and could make the greatest number of patterns that I have ever seen produced on any frame. He worked by the piece or weight of cloth, and earned big wages, and paid his help well, and the company made money, too, from his fancy work on ladies' skirts, gentlemen's shirts, drawers, etc.

The money panic of 1857 caused an accumulation of goods in the mills, and I started out to sell the goods, knit underwear, socks, stockings, etc., as we were making quite a variety; and here let me say, I take the credit of being the first man that went out either from factory or store to solicit orders or sell goods from sample, as the jobbers from New York, Philadelphia, Baltimore, etc., came direct to the mills and made their purchases, and among all the failures of banks and merchants in 1857, the Watervliet company did not lose one dollar.

In the stitch burr wheels and cast off on the Bailey & Fowler machines the blades all had to be soldered in the tricks or creases, the same as on the English machines, until about 1861, when Mr. Cavanaugh, of Cohoes, invented and secured a patent for a burr wheel with removable blades, which has been of great value to him, as well as a great benefit to manufacturers, for they can be purchased by the thousand very low, and if a blade gets worn out or injured, it is easily replaced by another in a few minutes, instead of soldering it in the hub, and having to turn it off or file it to size.

OLD SUPT.

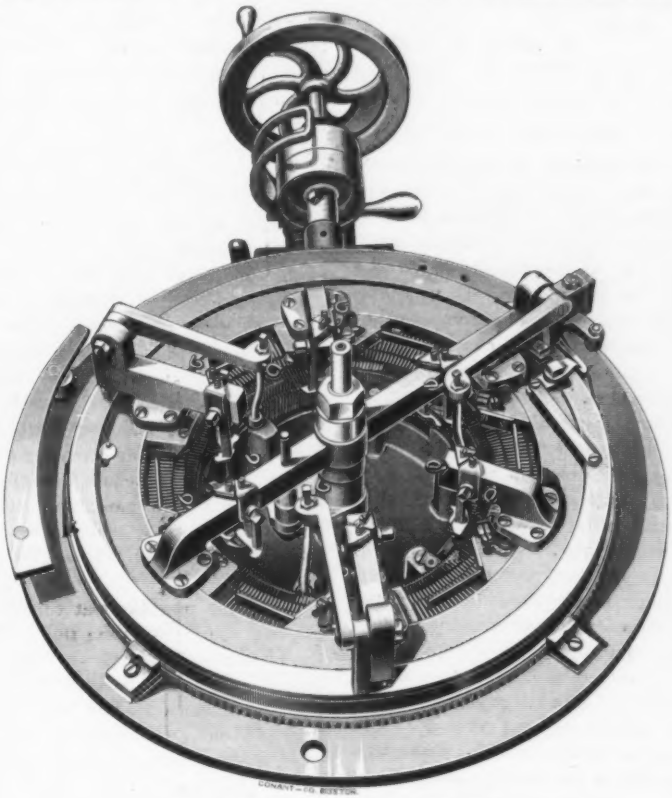
The Leighton Ribbed Underwear Machine.

The accompanying top-view illustration shows to good advantage the salient features of the working mechanism of the Leighton Ribbed Underwear Machine, and the many advantages of the principle involved. The stitches are first formed upon the *plate needles*, which are located radially outside of the cylinder, the webbing being knit between the plate and the cylinder, the product being drawn down between them and *outside of the cylinder*, where it is always in sight, and can be examined at any time without stopping the machine.

The important advantages accruing from this fact are at once apparent to a practical knitter. The errors resulting from mixing yarn of different weights or shades, or from an imperfect working needle, and many other of the causes of imperfect cloth, can at once be detected. Another important point is that the butts of the needles, by which they are handled or operated, being located on a relatively larger circle than the point of knitting, are at a greater distance apart than the natural gauge of the machine; therefore the cams can be made of a much easier pitch. They thus draw on but very few needles at a time, placing very little strain on the yarn in knitting, with the consequent saving of imperfections that are caused by too much strain on the yarn. It is found that the knitting on this machine is thus done with a minimum quantity of seconds, saving in attendance and wear and tear on the machine, with great economy of repairs and needles, which are very considerable items of expense to every manufacturer, to say nothing of the large percentage of perfect cloth turned out.

We have, in previous issues, described the Leighton machinery at considerable length, and, in presenting this more detailed view of its working mechanism, take pleasure in again noting the favor which their machinery is meeting in the trade. The range of work which is capable of being produced on the Leighton machinery will be remembered as quite a departure from the work usually done on circular frames, especially in the line of fancy knitting, which can be carried throughout the garment, or knit into any portion of the same, as desired by the designer. The fancy figures made by these improvements can be applied to the Swiss ribbed goods used for summer, or heavier tucked-stitch garments in winter grades, and many of them would seem to be especially desirable for the extra light weight used for infants' wear. This feature—that is, the

range in weight of yarn possible in Leighton machines — manufacturers not using them probably do not understand. For instance, yarns from 2/32's to single 40's, worsted, are readily knit on the same machine, making heavy or light goods as desired. Their great success on plated goods, not simply wool front and cotton back, but perfect wool or silk surfaces, has been remarkable, and merits careful investigation. This line of machinery is



TOP VIEW OF LEIGHTON MACHINE.

built by the Leighton Machine Co., of Manchester, N. H., who will be pleased to furnish full information to parties who desire to investigate the merits of machinery.

—In "Round About Notes," in the Colors and Dyeing Department, will be found a recipe for aniline black on knit goods which is worth attention. These Notes deserve study each month; they record the progress and new ideas and methods from the centres of information on these subjects.

—We have received from Mr. Horace G. Wadlin, chief of the Bureau of Statistics of Labor, a copy of the Twenty-fourth Annual Report of that Bureau, for 1893. This report consists of two parts, the first, after giving abstracts of leading historical examples, describes the modern methods, for dealing with the unemployed in this country and in foreign countries. It also describes the workings of the local intelligence offices and employment bureaus, giving statistical matter concerning the number of applications for positions, number of applicants placed, etc. The second part contains a chronological record of the principal events connected with organized labor in Massachusetts during the year, including labor legislation. The book shows great care in its compilation, and it must have involved a large amount of labor to make it so extensive and complete. Mr. Wadlin's work is of great value to the statistician and every one who has occasion to refer to industrial sta- tistics.

POWER DEPARTMENT.

O. R. YOUNG, M. E., Editor.

Bringing Up a Steam Plant.

BY REX.

XXIV.

GIVE YOUR ENGINE A CHANCE.

If there is any one piece of machinery in a factory, which should command the strictest attention and best of care, it is the engine. This is true for many reasons. It is the foundation of the business in many ways. It is practically the one lever to which all other moving parts owe their motion. It controls, absolutely, the output of the factory. On it, to a much greater extent than is generally realized, depend the dividends or losses of the concern. Then again, it holds, in many instances, the lives of the operatives and safety of the buildings in its grasp. It is, at all times, if in order, a patient, plodding servant, which will earn for its owners many times its cost, besides paying not only its own way, but also for its first cost and for all its own repairs and care.

One would think, when all these things were considered, that it would be given special prominence; that every care would be taken in its selection, to secure just such a machine as would do the work without being worked to death. It would also seem that when the engine was bought it would be installed in the most advantageous position to do its work; where it could do it with the greatest ease; where it could have the most favorable surroundings for prolonging its life and usefulness; would think it would be given into the hands of an expert attendant, who would know just its requirements, and would see that they were complied with. Again, we would suppose that such an important factor in a company's business, would be kept constantly in condition to do its work, in the easiest and most thorough manner, that when it had any of those little ills to which an engine is subject, they would receive immediate attention, instead of being allowed to run along for days and weeks and months, every day of which added to and increased them in an alarming ratio, until at last the machinery doctor is called in, and he is reviled at for prescribing "complete rest during recuperation." Then one would think that, knowing his business the "powers that be" would follow his advice; but they don't do it. Say they can't; say we must have power, our works can't lie idle; and they patch up the emaciated organism and run it for a few months later, when a complete collapse necessitates a new engine.

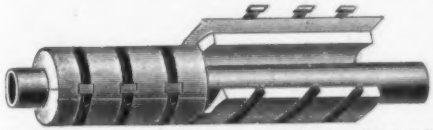
When the new engine is contracted for, we would suppose that, profiting by former experiences, the purchaser would avoid the mistakes made with the former machine, and would install it as it should be, following something like the above lines of proceedure.

HOW SHOULD HE DO IT?

In the first place he should consult the needs of his plant—be sure that he knows the amount of power required to run it—allow for what increase he thinks his business will call for in a given number of years.

Does the ordinary buyer do this? Not one in a hundred. It is a famous fact that not one manufacturer in a hundred ever buys a power plant sufficient to his needs, before making at least two and sometimes three changes.

AT A TEST of Steam Pipe Covering bought
in open market by the **STATE COLLEGE OF PENN'A,**
For the purpose of conducting a condensation test



Our Coverings Gave

20 per cent. better results than Johns' Asbestos Sponge.
20 " " " " " Magnesia Sectional Covering.
27 " " " " " Carey's So called Asbestos.
50 " " " " " Manville Wool Felt. Covering.

We Offer it at Prices to suit the Times.

AGENTS WANTED.

NEW YORK FIRE PROOF COVERING CO., 128 Liberty Street, NEW YORK

Generally, after being compelled to change two or three times, he awakes to the fact he has been throwing away money, and changes his plan, so that in place of buying the smallest engine which will possibly drag his machinery, he purchases one which will *drive* it, and do it with ease and economy.

Why do I say ease and economy? Because, while every engine which is compelled to drag machinery cannot be economical in any way, it does not, from necessity, follow that every easy running engine is as economical as it might be.

The buyer may make a long stride toward economy, when he purchases an engine which is able to do his work, but he would take another if he would be sure to secure the most economical one he could find, instead of accepting the lowest bid, and taking the word of the bidder for gospel, as to the amount of work it will do and the quantity of coal necessary to do it; but even this is far ahead of the idea of accepting the lowest bid without the slightest idea of the steam economy of the machine.

Then again, he often finds himself obliged to sacrifice much to space, just because he has not allowed the proper amount of room for his engine, this most important factor in his whole establishment.

"Mr. B," said a friend of mine one day, "I cannot see how a man like you would buy this engine, which has a national reputation for a steam eater."

"Well," replied Mr. B, "I was obliged to do so, for I wanted to get it into this space."

What had he done? Why, to save a few dollars worth of space, which, by the way, in that locality, wasn't particularly valuable, he had purchased a machine for

BURNING DOLLARS

just about as fast as they could be shovelled into his furnaces.

Another man was heard to say that he purchased a certain make of engine because the place where he wanted to put it was not good enough for a good engine.

Why not make a place "good enough?" Why not spend a few dollars to save hundreds? This is one of the greatest mysteries in intelligent engine practice, and yet, I will venture to say, that over two thirds of the engines running to-day, are in places where they ought never to have been located.

Rust, dust, grit and darkness are deadly enemies to a good engine. Why darkness? Because in a dark room many things about the engine which should be attended to, pass unnoticed by the engineer. Not only this, but give an engineer a poorly lighted, worse ventilated room, and he has no encouragement to keep his engine clean.

I have always been an advocate of a well lighted, dry and clean engine room. There is always money saved by building such a one, even though it may cost a few dollars at the start. I know of engines to-day which are total wrecks, owing to being located in damp cellars, which, had they been in proper places, would be worth to-day almost their first cost. There are also many

engines to-day which are resting, unused, in out of the way places; resting, I might say rusting, which if some enterprising man had them in charge, he would long since made them earn their living instead of allowing them to rust out.

It is a well known fact that an engine will

RUST OUT QUICKER

than wear out, unless well cared for, but this is often lost sight of by owners, until they want to use the machine.

But our man has bought his engine. Next he wants some one to look after it. Here is a piece of property which cost a large sum of money, upon which depends the success of the business, a machine which can either save or waste as it is kept in condition. What does our owner do? Starts out to hire an engineer. Asks if he understands an engine, knows how to keep it in repair, etc. Having satisfied himself on these grounds by listening to answers which are as incomprehensible to him as they often are to the man who makes them, then comes the question of price. He may not secure the lowest price man, but he seldom takes the one whose reputation, ability and knowledge entitles him to ask a price which will guarantee the expert care which every engine should have.

In other words, he allows the matter of a few dollars per week to outweigh every other consideration, and places the success or failure of his whole business in the hands of a man who is willing to work a few dollars less than a man who may be worth twice as much.

He has merely done what? Purchased a machine which is sure to wear out rapidly, put it in a place where, should he wish to get rid of his money, everything is certainly "greased for the occasion." Has given it into the hands of, to say the least, a doubtful guardian, and then he wonders how Mr. X, who has used a little better judgment than he, is making money while he loses.

It should be no surprise to him; it isn't to any practical man. He merely hasn't done what he ought; namely, given his engine a chance. To sum it all up, the man who needs an engine should

1. Secure expert advice before buying.
2. Buy one large enough.
3. Pay enough to secure a good machine.
4. Put it in as good a room as its worth merits.
5. Secure the best man he can to take care of it.

Pipe Covering Tests.

Comparative tests, if accurately made, are sure to result in a benefit to the buyer, as it lets a little light upon why he can obtain a certain covering at so much less than he is obliged to pay for another. To be sure, it only goes to show that a first-class article not only commands a standard price, but is really worth it.

One would naturally suppose that nothing would be needed to teach the business man this, but it is a well-known fact that many shrewd business men fool themselves, at times, by buying a poor grade of covering just because the first cost is a few cents cheaper.

Engineers will doubtless be surprised to find that, from a chemical analysis, "asbestos" coverings of well-known brands should be found to contain no more than 5 per cent. asbestos, but are composed almost wholly of sulphate of lime, better known as plaster of paris. If such was the fact, it will readily account for the failure of the coverings to maintain their strength after having been used, and will account, also, for their disintegration when soaked in water. The analysis would seem to show, moreover, that some of the coverings tested ought to be known as plaster-of-paris coverings rather than the names they hold, though we opine a plaster-of-paris covering would not be very popular because of a tendency at times to corrosion and its softening qualities. The condensation tests, however, appear to show that plaster of paris was a good non-conductor, as the covering containing 90 per cent. of this substance gave within 6 per cent. as good efficiency as the best covering tried.

The best result obtained was with the magnesia covering of the Keasbey & Mattison Co. This was found to contain 89 per cent. magnesia, besides as much asbestos as any of the others; it allowed the least loss by radiation; its strength was greatest, and was as strong after use as before use, and it was not affected by being soaked in water for three weeks. The latter qualities named are of great value, because they will allow the covering to be removed from pipes, and used over and over without affecting its integrity or reducing its non-conducting powers.

The following certified tests will be read with interest by steam users in general:

STATE OF OHIO, } ss.
HAMILTON COUNTY, }

Louis Schmidt being first duly sworn, says:

I have experimented with the different steam-pipe coverings sold on this market, with respect to their non-conductivity, strength, durability, etc., in the following manner:

I had constructed an apparatus with six 2-in. steam pipes 6 ft. long extending from it. It was arranged with a trap so that dry steam went into these pipes. At the end of each 6 ft. was a cap and a 1-4-in. nipple and valve, by which the condensation was drawn off. Upon the four inside lines was placed 6 ft. of the different sectional coverings to be tested. All connections were thoroughly covered. The outside lines were covered (5 and 6) so as to place all of the sectional coverings under equal conditions. I have, for convenience, numbered the samples, as follows:

No. 1, Philip Carey Mfg. Co.'s Standard Asbestos-Magnesia Sectional Removable Pipe Covering.

No. 2 H. W. Johns' Mfg. Co.'s Asbestos-Sponge Moulded Sectional Covering.

No. 3, Chicago Fireproof Covering Co.'s Ideal Asbestos Moulded Covering.

No. 4, Keasbey & Mattison Co.'s Magnesia Sectional Covering.

No. 5, Philip Carey Mfg. Co.'s Asbestos Cement.

No. 6, Keasbey & Mattison Co.'s Magnesia Plastic.

I purchased all of the coverings on the open market from the agents of the manufacturers.

Steam was turned on at midnight; the valves at the end at each 6 ft. of the coverings were opened to allow the condensation to drip into buckets; at seven o'clock in the morning the valves were closed, and the condensation was drawn off each hour until the pipes became thoroughly heated and the quantities of water became uniform. At twelve o'clock, noon, the test was started; the condensation was drawn off and measured for three consecutive hours — namely, 1, 2 and 3 o'clock — with the following results:

No. 1, 231	grams or	38½	grams per ft. per hour				
No. 2, 228	"	"	38	"	"	"	"
No. 3, 272	"	"	45½	"	"	"	"
No. 4, 216	"	"	36	"	"	"	"
No. 5 392	"	"	65½	"	"	"	"
No. 6, 232	"	"	38⅝	"	"	"	"

Average steam pressure, 73 lbs. Temperature, 315 Fah.

Average temperature of room, 28 C, or 72.4 Fah.

Tests were then made of the strength of each of the sectional coverings in the following manner: Cross sections of pieces for two-inch steam pipe, one inch high, were subjected to pressure until crushed to one-half inch in height in each case, with the following results:

	Area.	Ultimate stress.	Pressure per sq. in.
No. 1, 11	sq. in.	660 lbs.	60 lbs.
No. 2, 11	"	1230 "	113 "
No. 3, 11	"	1175 "	107 "
No. 4, 11	"	2800 "	255 "

Pieces carefully cut from the sections used in the test were subjected to pressure in the same manner, with the following results:

	Area.	Ultimate stress.	Pressure per sq. in.
No. 1, 11	sq. in.	460 lbs.	42 lbs.
No. 2, 11	"	480 "	43.5 "
No. 3, 11	"	360 "	32.7 "
No. 4, 11	"	2800 "	255.0 "

The coverings were only on the steam pipes fifteen hours. No. 4 stood the same pressure after as before.

Pieces of each were soaked in water for three weeks. No. 1 softened and disintegrated. No. 2 disintegrated completely. No. 3 less rigid than No. 1; more rigid than No. 2. No. 4 remained rigid.

A sample of each covering was then taken from the pipe, and an analysis

made thereof, yielding the following results:

	No.1.	No.2.	No.3.	No.4.
Moisture, - -	8.28%	4.58%	7.36%	2.98%
Asbestos, - -	4.73%	3.24%	5.47%	4.78%
Alumina and Iron,	0.62%	1.31%	5.75%	2.65%
Sulphate of Lime,	86.37%	90.97%	81.42%	None
Magnesia, - -	Trace	Trace	Trace	89.59%

"This report was made for the purpose of finding out the true relation which each covering bears to the others in non-conducting qualities, strength, etc. Having purchased all of the coverings in person, in the open market, insured representative samples of the material as sold by the manufacturers.

"The coverings above mentioned were applied in my presence, in this way insuring an impartial test of all coverings under like conditions."

LOUIS SCHMIDT.

Sworn to and subscribed, before me, this 21st day of September, 1894.

JAS. R. FORAKER,
Notary Public in and for Hamilton County, Ohio.

Chas. Olsen.

The above portrait will interest many of our engineer readers, from the fact that it shows what a man, who tries to amount to something more than a coal heaver in engineering lines, can and will accomplish.

The subject of this sketch, Mr. Chas. Olsen, one of the best known engineers in New York, started in the business as a coal passer on one of the Morgan Line steamships, and being of an ambitious disposition, gradually advanced to the rank of engineer, holding that position on the twin screw steamer Ruby.

Tiring of the sea to a certain extent, he took up stationary engineering among the large sugar works in Southern states, and later, coming North, he started a new system of having house heating boilers and furnaces cared for by experienced firemen, instead of by anyone who could shovel coal. By careful attention to business, he soon built up a large patronage by showing an actual saving of 40 per cent. in coal bills.

This occupying his attention only during the winter months, he accepted a position with the Gas Engine & Power Co., of Morris Heights, as instructor, teaching purchasers how to handle naptha launches. It was in this capacity, while taking a party down the harbor, his knowledge of navigation came in play, for they were caught in a squall which nearly upset the craft, and the strain on the engines caused the packing to blow out, allowing the naptha to leak, setting the boat on fire. With commendable presence of mind Mr. Olsen extinguished the flames and repaired the engine. The time taken in doing this kept the party down the sound until after dark, thus adding to the danger they were in from the storm. With a less skillful navigator or one not familiar with the coast, the party would have doubtless been lost; as it was, they were safely landed at the wharf, a well drenched and thoroughly frightened company.

Mr. Olsen is the inventor of several improvements in engineering devices, among them being a marine engine governor, electric gas regulator and an indestructible arch plate for boilers, which has obtained a wide notoriety on account of its value, a full description of which appeared in this department a few months ago. He has also added many improvements to the large plant where he is now chief engineer. In short, instead of being content with being a mere coal heaver, Mr. Olsen has found a place for himself where there is always room for a man with push and ability, namely, at the top of his profession.

The Heat Unit.

In order to determine the amount of heat in a given body of water, we must first decide upon some convenient unit of heat, and then we must find out how many of these units would be required to raise the given mass of water from the freezing point to the given temperature. For example, we might adopt, as our unit of heat, the heat required to melt one pound of ice. We would then determine how many pounds of ice the given mass of water could melt, in cooling from the observed temperature down to the freezing point. This method of procedure, while quite satisfactory for laboratory purposes, is of little or no use to the engineer, for the reason that ice is often expensive and difficult to obtain, and that the apparatus necessary to ensure accuracy in measuring large quantities of heat by this method would be so cumbersome that it could not be transported from place to place.

For general use in engineering, we are, therefore, obliged to adopt some other unit for heat measurement. We might, for example, define a "unit of heat" as the quantity of heat required to raise the temperature of a pound of some given substance one degree; and, in fact, this is the kind of unit that is actually used in practice. We could base the proposed unit on any substance we choose, but as water is both cheap and convenient, and as it can nearly always be obtained in a condition of reasonable purity, it has been adopted by universal consent, and a "heat unit" is defined to be that quantity of heat which will raise the temperature of one pound of water one degree.

Careful experiments, performed after taking all possible precautions against loss of heat by radiation and conduction, have shown, says a writer in The Locomotive, that the quantity of heat required to raise the temperature of a pound of water one degree is not the same at all points of the thermometer scale, although it indicates at the same time that the total variation between the freezing point and the boiling point is very slight. We can conclude, therefore, that although a "heat unit" is not the same at all temperatures, the variation in its value is so slight that for most purposes it can be neglected. In calculating tables of the properties of steam and water, allowance is made for the fact that the "specific heat" of water is not the same at all temperatures; but in all the ordinary work of testing boilers and engines, and laying out steam plants and heating systems, it is customary to consider the specific heat of water to be constant, and the "heat unit" is defined to be simply "the quantity of heat that will raise the temperature of one pound of water one degree." When we speak, therefore, of a pound of steam, in condensing, giving out 967 heat units, we merely mean that it gives out an amount of heat that would be sufficient to raise the temperature of 967 pounds of water one degree; and similarly, when we speak of a pound of coal giving out 14,000 heat units when burned, we mean that each pound of coal can heat 14,000 pounds of water one degree. Finally, when we say that the "mechanical equivalent of heat" is 779 foot-pounds, we mean that if a weight of 779 pounds should fall one foot, the work it would do would be just sufficient to raise the temperature of a pound of water one degree.

Silk in India.

An appeal is made for government aid in extending the culture of the mulberry tree in the vicinity of Mysore, India.

It is stated that silk culture was a profitable cottage industry there, but now a scarcity of leaves threatens its extinction.

Dependence has hitherto been placed on the shrub mulberry.

Nettle Fibre.

Among the products which science has put to valuable service is the nettle, a weed which is now being cultivated in some parts of Europe, its fibre proving useful for a variety of textile fabrics. In Dresden a thread is produced from it so fine that a length of sixty miles weighs only two and a half pounds.

Sisal Hemp in Jamaica.

THE DEVELOPMENT OF AN INDUSTRY THAT SHOULD HAVE A PLACE IN FLORIDA.

Sisal fibre culture is an infant industry in Jamaica, but it is receiving considerable attention, as it has been demonstrated that there are soils in this island highly adapted to its cultivation, and that the climate is identical with that of Yucatan, where it is so extensively grown. There seems to be no doubt but that it can be cultivated here as profitably as in Yucatan.

The present governor of Jamaica, Sir Henry Blake, formerly governor of the Bahamas, where he was largely instrumental in the introduction of the sisal hemp industry, has taken a deep interest in its cultivation since his arrival in this colony, and has done much to promote it.

The task of securing young plants to set out has been attended with some difficulty. In the year 1886, the botanical department endeavored to procure a supply from Yucatan, but the planters, wishing to retain the monopoly of the trade that brought them large fortunes, refused to export them. However, through the special request of the colonial secretary, addressed to the British vice consul at Progress, one dozen plants of the ordinary kind under cultivation were secured. In 1889, the government of the Bahamas forbade the export for a period of three years, but fortunately more than 20,000 plants were secured from Turk's Island, and a plantation was established at the Hope Gardens, near Kingston.

In 1891, the Jamaican government imported, from Florida, 25,000 plants of the same variety as that grown in the Bahamas. This was in addition to over 51,000 already supplied to planters and the 20,000 planted in the Hope Gardens.

There is now a large supply of plants at the Hope Gardens, which are offered for sale at $19.45 per thousand. The planter is thus enabled to secure them at a less expense than formerly. Lieut. Col. Ward, Jamaican commissioner at the World's Columbian Exposition, has recently become interested in sisal cultivation, and has set out about 100 acres. The plants are doing well, and he is preparing to cultivate them on a larger scale.

The culture of sisal-hemp, aside from being a source of revenue to the planter, will enable him to utilize barren land and impoverished soils, hitherto deemed worthless. The only requisites are that the soil be dry, and that the rays of the sun be allowed free penetration, shade being prejudical to the plants.

There will be a fair export of sisal fibre from the Bahamas in 1894, and a large one in 1895. If the present prices continue, sisal fibre is destined to become one of the principal exports of this island, and will, no doubt, become as great a boon to this colony as it has proven to Yucatan and the Bahamas. And how great a boon it has proved to the Bahamas will be realized when the attention is called to the fact that those islands have risen from almost hopeless stagnation to one of industrial prosperity, and this due entirely to the extensive cultivation of the sisal fibre plant. But the Bahamas established the industry in the right way, by first passing an act to pay one cent a pound on all fibre exported for seven years. Second, they dispatched a commissioner to Yucatan to study the methods of raising the plant.

The industry was started in 1889, and has increased at such a rate that the growing means and business of the colony have warranted the establishment of a cable between Nassau and Florida. The extension of the postal service and the customs have received additional equipment for the protection of the revenue. Every industrial and commercial interest seems to have been vitalized by the active developement of the fibre cultivation, and the value of lands have increased two and three hundred per cent.

It has also created fortnightly mail service between New York, in place of monthly service. Ship building has

revived. The government has been able to establish a normal school, and all this has been accomplished in five years.

It will be a surprise to a great many, to know that although the sisal of the Bahamas brings a great deal more a ton in London, than the Yucatan variety, there is, in the state of Florida, a much finer, better and longer fibre, and a more productive plant by 50 per cent., than is grown in the Bahamas.

More than 60 years ago, a Dr. Perrine obtained a grant of land from the government, to raise sisal in Florida; he brought his plants from Yucatan, and established a plantation, but was unfortunately killed by the Indians, in the Indian Key massacre, but the plants he set out have increased until now they can be counted by the hundred thousands, notwithstanding the fact that schooner loads of the plants were carried away to the Bahamas.

In fact, the very first plants the Bahamas ever saw, were taken from Florida in 1837 and 1838.

Although the Bahamians paid for some of their plants, they helped themselves to a great many more, and now they have prohibitory laws which are very stringent in regard to the exportation of the fibre plants, either old or young. It seems an outrage that an industry which could be established in Florida, at a small expense, should be allowed to slumber. In four years time it would mean millions of dollars to the state.

By a duty on sisal and laws prohibitory to the exportation of the plants and a bounty on the fibre raised for a certain number of years, the Keys and lower end of Florida, could raise all the fibre the United States could use, which country takes over eighty per cent. of all the fibre marketed, which in 1890 amounted to over four millions of dollars.

To raise this amount would call for the cultivation of 70,000 acres in Florida, and there is land thoroughly fit for the cultivation of sisal, which can be cleared for forty dollars an acre, and plants can be had in abundance from the Keys at a very small sum. What is desired, is more to call the attention of Northern capitalists to this great industry, which requires to be operated on a large scale, to be successful.

Manufacture of Imitation Utrecht Velvet.

Satisfactory tests have been made at Amiens, France, for imitating the well known Utrecht velvet, with great economy of time, labor and cost. In accomplishing this result—producing a velvet pile fabric similar to the above named—a looped pile fabric, of any description, is selected, and by means of a roller having the required design, either in relief or recessed thereon, is passed over those portions of the loops, flattening the same down, that are required to form the looped pile in the finished fabric.

The remaining loops which project up beyond the flattened ones, are then cut, on the completion of which operation the flattened loops are raised again, either by steaming or wetting. The loops thus raised, are then, of necessity, of a less height than the cut pile, and consequently present a sunk pattern of looped pile, combined with a raised ground of cut pile, having the same appearance as Utrecht velvet.

In order to prevent any threads of the loops from being dragged out of the fabric, by the cutting, the ground is first carefully sized and dressed.

Wooden Yarn.

The average American is so used to adulterations that when you tell him his coffee is made from sawdust, and his sugar from sand it does not surprise him. In this line wood pulp has been put to many uses, but the most extraordinary is in adulterating woolen yarn.

A way of spinning the pulp has been discovered, and the production can be combined with wool in making yarn, in the proportion of one part wood to two parts of wool. Much of this composite yarn is said to be used in making hosiery.

COLORS AND DYEING.

EDWARD PRAG, Editor.

Experimental Dye Sheet Recipes for December.

A Sample Color Sheet is issued each month from the TEXTILE WORLD Laboratory, containing Samples of stock, yarn, fabrics etc., which have been dyed in our laboratory according to the recipes given in the TEXTILE WORLD. We show the latest colors and methods from month to month. The extra cost of the Dyed Sample Sheets is $1.00 per year. Samples from the following recipes are shown in this month's sample sheet.

No. 61.

Red on Loose Wool.

Dyed with Brilliant Red W; C. Bischoff & Co., 80 Front St., New York.

(For 100 lbs. of loose wool.)

Prepare a bath containing,

10% Glauber's Salt,
4% Sulphuric Acid,
2% Brilliant Red W.

Enter wool at 145° F.; pole the wool for a few minutes, raise temperature gradually to a boil, and boil one hour. Fork out, wash and dry.

No. 62.

Bright Scarlet on Loose Wool.

Dyed with Scarlet 3 R; Read Holliday & Sons, 7 Platt St., New York.

(For 100 lbs. of loose wool.)

Prepare a bath containing,

10% Glauber's Salt,
4% Sulphuric Acid,
2% Scarlet R.

Enter wool at 135° F.; pole wool four or five minutes, raise temperature gradually to boil, and boil slowly one hour. Fork out, wash and dry.

No. 63.

Greenish Yellow on Loose Wool.

Dyed with Chromo Flavine D; C. Bischoff & Co., 80 Front St, New York.

(For 100 lbs. of loose wool.)

Prepare a bath containing,

10% Glauber's Salt,
4% Sulphuric Acid,
1% Chromo Flavine D.

Enter wool at 140° F.; pole wool well, raise temperature gradually to a boil, and boil until the bath is fairly exhausted, then add to the bath, 2% Flouride of Chrome. Boil for 20 minutes longer. Then fork out, wash and dry. This color is fast to fulling.

No. 64.

Terra Cotta on Woolen Yarn.

Dyed with Diamine Fast Red F, Pat., Anthracene Yellow C, powder; Wm. J. Matheson & Co., 179 Front St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

5 % Acetate of Soda.
½% Diamine Fast Red F, patented.
2 % Anthracene Yellow C, powder.

Enter yarn at 120° F.; give 3 turns, then raise temperature slowly to a boil, and boil until the bath is fairly exhausted, then add to the bath, 4% Bisulfate of soda. Then boil until bath is completely exhausted; when exhausted add to the bath 2 1-2% flouride of chrome. Boil 30 minutes. Lift, wash and dry.

No. 65.

Medium Reddish Brown on Woolen Yarn.

Dyed with Chromotrop 2R, Patent Blue, Victoria Yellow conc.; Schulze-Berge & Koechl, 79 Murray St., New York.

(For 100 lbs. of yarn.)

Prepare a bath containing,

10 % Glauber's Salt,
4 % Sulphuric Acid.
¾% Chromotrop 2 R,
¼% Patent Blue,
1¼% Victoria Yellow, conc.

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Enter yarn at 120° F.; turn yarn continually until the temperature has risen to about 180° F.; boil for one hour, turning yarn from time to time. Lift, wash and dry.

No. 66.

Black on Woolen Flannel.

Dyed with Acid Black J. E; Wm. Pickhardt & Kuttroff, Liberty St., New York.

(For 100 lbs. of flannel.)

Prepare a bath containing,

10% Glauber's Salt,
4% Sulphuric Acid,
5% Acid Black J. E.

Enter flannel at 145° F.; run four ends, raise temperature slowly to a boil, and slowly boil for one hour. Lift, wash and dry.

This color dyes very even and gives an exceedingly pretty black.

No. 67.

Steel Blue on Velveteen.

Dyed with Sambesi Blue B; New York & Boston Dyewood Co., 55 Beekman St., New York.

(For 100 lbs. of velveteen, unbleached.)

Prepare a dyebath containing,

1½% Fankhausine,
20 % Glauber's Salt,
3 % Soda Crystals,
4 % Sambesi Blue B.

Enter velveteen at 150° F.; run four ends, raise temperature slowly to a boil; boil one hour. Lift, wash and dry.

No. 68.

Reddish Brown on Velveteen.

Dyed with Congo Brown G; New York & Boston Dyewood Co., 55 Beekman St., New York.

(For 100 lbs. of velveteen.)

Prepare a bath containing,

1½% Fankhausine,
20 % Glauber's Salt,
3 % Soda Crystals,
8 % Congo Brown G.

Enter velveteen at 150° F.; and dye out, in the same way as in recipe 67.

No. 69.

Yellow on Velveteen.

Dyed with Ultonia Yellow; W. W. Hanna, 50-52 N. Front St., Philadelphia, Pa.

(For 100 lbs. of velveteen.)

Prepare a bath containing,

1½% Fankhausine,
20 % Common Salt,
2 % Ultonia Yellow.

Enter velveteen at 150° F.; run four ends, raise temperature to a boil, and boil one hour. Lift, wash and dry.

No. 70.

Orange on Velveteen.

Dyed with Benburb Orange; W. W. Hanna, 50-52 N. Front St., Philadelphia, Pa.

(For 100 lbs. of velveteen.)

Prepare a bath containing,

1½% Fankhausine,
20 % Common Salt,
2 % Benburb Orange.

Dye out in same way as in recipe 69.

No. 71.

Light Blue on Cotton Yarn.

Dyed with Chicago Blue 4B; New York & Boston Dyewood Co., 55 Beekman St., New York.

(For 100 lbs. of cotton yarn.)

Prepare a bath containing,

2 % Fankhausine,
20 % Glauber's Salt,
3 % Soda Crystals,
1 % Chicago Blue 4B.

Enter yarn at 150° F.; give three turns, raise temperature slowly to a boil, and boil for one hour. Lift, wash and dry.

No. 72.

Black on Raw Cotton.

Dyed with Direct Blue Black B; E. Sehlbach & Co., 77 William St., New York.

(For 100 lbs. of loose cotton.)

Prepare a short bath containing,

1½ % Fankhausine,
15 % Common Salt,
8 % Direct Blue Black B.

Enter cotton at 160° F.; pole well, raise temperature to a boil, and boil one and one-half hours. Fork out, let cool off a few minutes, wash and dry.

Roundabout Notes.

For the Textile World.

DYEING, PRINTING, BLEACHING AND FINISHING.

A soap powder for cleansing fibrous materials has been patented, in England, by the Carntyne Chemical Works, Glasgow. It is made by saponifying cocoanut oil with a slight excess of caustic soda, and, after complete saponification, neutralizing the alkali with boracic acid. Water and carbonate of soda is next added in such proportion that the mixture contains 40% of soap and 60% of (dry) carbonate. The product is then dried in soap frames or shallow tanks. When thoroughly cool and dry, it is pulverized and mixed with a proportion of sulphate of ammonia equal to the amount of carbonate of soda present. This last operation must be done thoroughly, with the object of obtaining the maximum of carbonate of ammonia, which gives the compound its cleansing properties. Palm oil may be used in place of cocoanut oil.

***

Stannic acid is largely used in dyeing, commonly in the form of tetra-chloride of tin. It is liable, however, to make the fibre brittle and harsh, and if it has no worse faults, it at least gives a bad handle to cloth. Two New York chemists protect, in England, a method of overcoming this injurious effect. They treat the fibre with a chemical which will combine with the stannic acid in such a manner as to form an insoluble or sparingly soluble salt, and claim that this plan gives all the benefits and none of the disadvantages of stannic acid. The chemical in question is the oxide of a metal in one of the four following forms: A soluble organic salt, a soluble alkaline inorganic salt, a basic oxide or hydroxide, a double salt. This seems to pretty well cover the range of oxides; at least it seems likely to prevent mistakes in choosing the salt used. The method is to treat the fibre with tin salts, as usual, then to pass it through a bath of, say, a barium salt, made alkaline with ammonia. A pretty strong bath may be made, as the product on the fibre is a true combination. The proportions of the bath therefore are of no consequence as long as it contains plenty of the neutralizing chemical.

***

The Hoechst house are trying experiments, with a view to extending the direct production of color on the fibre to wool. This is quite a novel suggestion, but does not seem to have got beyond the experimental stage yet. The wool is dyed in an acid bath, with an azo color, containing an amido group. It is then diazotised with sodium nitrite and passed through a weak alkaline developer. In this way it is said that several of the amido-azo colors give useful and fast shades.

***

Cutch is so cheap and so fast that it will perhaps never be kicked out by the coal-tar colors. It stands as good a chance of immortality as any of the natural dyes, especially as a bottom for mode shades. But, all the same, the usual practice of topping with basic colors is slow and tedious, and the results are often not worth the trouble of the necessary three baths.

The Berliner now says that some of the direct colors, such as are now precipitated by sulphate of copper, and at the same time take kindly to the final chroming, do excellent work, and can be used in the same bath with the cutch.

***

A little list is given of the most suitable colors. These are Kalle's Direct

Yellow G, Leonhardt's Mikado Orange 2R and 4R, Cassella's diamine scarlet, Diamine Black BH, and Diamine Blues BB and BX, and Bayer's diazo blue-black and Diazo Black G and R. The ordinary addition of Glauber's salt or common salt to the dye bath kills two birds with one stone. It fixes and levels the substantive color, and at the same time helps to exhaust the cutch bath, so that it is asserted that the strength of the color is increased by 25%.

***

For aniline black on knitted goods the Leipziger recommends the following process. Boil the knitted goods for about an hour in a bath containing from 3% to 5% of their weight; rinse first with warm and then with cold water. Treat next, for half an hour, in a 5% bath of acetic acid, at 120° F., manipulating carefully all the time; then dry in the air.

***

Meanwhile you have prepared two baths. First:

15 lbs. Aniline Salt,
15 " Aniline,
16 " Hydrochloric Acid,
15 " Sodium Chlorate dissolved in 5 gallons water.

The chlorate, dissolved in the water, is added after the first three ingredients have cooled on mixing.

Secondly:

5 lbs. Sulphate of Copper,
½ " Sulphuric Acid (66B),
⅛ " Sodium Bichromate dissolved in ⅒ gallon of water.

***

Immediately before using, these two baths are mixed, the knitting goods instantly immersed and manipulated carefully therein for half an hour. They are then dried in the air and oxidized, at 135° F., for two hours. They have then another quarter of an hour in a 3% bichromate bath, at about 90° F., and then rinsed first in warm, then in cold water. Finally they are washed in a 10% soap bath for half an hour, at about 120° F., rinsed and dried.

***

Prosper Monnet, of the Lyons firm of color makers, has discovered that resorcine warmed in solution with nitrite of soda and bichromate of potash is changed into a coloring matter soluble in water, dyeing wool, silk and cotton black shades; very fast to light and soaping. In 100 litres of boiling water, 20 kilograms of bichromate are dissolved, and to this is added 200 kilograms of resorcine. Continuing the boil, 20 kilograms of dry nitrite of soda are added little by little. The heating is continued until a strong paste is obtained, and then the drying is completed in the water bath. The dyestuff obtained is in the form of a violet-black powder, dyeing wool and silk in a slightly acid bath, a little emetic helping matters. Soaping increases the beauty and intensity of the shade.

***

Zebrowski, a Russian chemist, suggests a method of animalizing cotton fibre so that it may be dyed in exactly the same manner as wool. He treats the cloth or yarn in a bath of one part of caustic soda and three parts of slaked lime at a temperature of 22 to 24 C. until the fibre becomes transparent. After this the stuff is steeped in a bath acidulated with sulphuric acid, the strength of the bath and the length of treatment in it being regulated by the length of stay in the alkaline bath.

***

A new printing process consists in printing with a direct color, diazotising with beta-naphtholate of soda, and printing on a white or color discharge, and finally printing on a diazo, which forms an insoluble color in the places where the discharge is not printed on. For instance, the cloth is dyed in the usual way, with a substantive color and Glauber's salt, and then padded with a solution of beta-naphthol in caustic soda, or, for light shades, the beta-naphthol solution may be added to the dye bath. Then the discharge is printed on either tin salts or zinc dust, with or without some such non-reducible color as phosphine or methylene blue. Next, the cloth is steamed, printed with a diazo, steamed again, washed and soaped. It is said the result is admirable; but it needs to be to compensate for such a tedious process.

An ungreenable aniline black is always a desideratum, and unchanging shades seem to require a preliminary bistre brown on the fibre, or at least something of the kind. The Leipziger now recommends a passage through a strong bath of copper sulphate, followed by a bath of ferrocyanide, which gives a good brown on the cotton. The goods are then wrung and put into a bath made with 15 gallons of water, 14 pounds aniline salt, 3 pounds chlorate of soda and 15 pounds ferrocyanide. Dry at a temperature not above 40 C. (say, 100° F.), and steam at a pressure of 15 pounds.

The Fastness to Light of Some Dyestuffs.

ON ANIMAL FIBRE.

Cyanol Extra (Cassella), exposed to the action of the weather 18 days, August–September; got duller.

Alkali Violet R (Bayer), 18 days, May–June; faded very much.

Chicago Blue B (Berl: Act.-Ges.), 30 days, June–July; got dark.

Congo Brown G (Berl: Act.-Ges.), 30 days, June–July; got lighter, a little reddish.

Sulfamine Brown A (Dahl & Co.), 15 days, May–June; changed little.

Fast Blue 6B (Berl: Act.-Ges.), 18 days, August–September; changed very much; got gray.

ON VEGETABLE FIBRE.

Oxamine Violet (B. A. and S. F.), 13 days, April–May; changed very much.

Oxamine Violet, diazotized and developed with B Napthol (B. A. and S. F.) 13 days, April–May; got redder and lighter.

Columbia Blue G (Berl: Act.-Ges.), 13 days, August–May; faded very much; got dull lilac.

Oxamine Blue (B. A. and S. F.), 13 days, April–May; faded very much.

Hellgoland Blue (Farbwerke Griesheim), 7 days, September; faded very much; when coppered the color did not change.

Azophenine Blue G and R (Farbwerke Griesheim), 7 days, September; did not change.

Chicago Blue 4B (Berl: Act.-Ges.), 7 days, September; faded very much; got gray.

Fast Black B in paste (B. A. and S. F.), 18 days, August–September; changed; got brownish.

Columbia Black B (Berl: Act.-Ges.), 18 days, August–September; faded very much.

Thiazine Brown R and G (B. A. and S. F.), 11 days, September; got lighter.—[Dr. Adolph Lehue Faerber Zeitung.

Substantive Dyes in Half-Wool Dyeing.

The Leipziger Faerber Zeitung has made out the list following below, which should be of great interest to every dyer. Substantive dyes are dyed with Glauber's salt or common salt. Some dye cotton and wool fibre alike; again others will only dye the wool or the cotton alone. This list shows exactly what colors can be used for dyeing certain classes of goods and what results will be obtained:

Dyeing Wool and Cotton Alike.

Oxyphenine, Mimosa, Curcuma, Chloremine yellow, Thioflavine S, Alkali yellow R, Chromine G, Auroline, Congo corinth B, Titan scarlet S and Primuline.

Dyeing the Wool more than the Cotton.

Congo R, Brilliant congo R, Diamine red NO, Chicago blue Z and R, Brilliant purpurine R, Diamine scarlet B, Delta purpurine 5B, Chrysamine, Titan blue, Titan rose, Titan brown Y, R and O, Titan yellow, Diamine green B, Chrysophenine, Erika, Benzo purpurine 4 and 10B.

Dyeing the Cotton more than the Wool.

Clayton yellow, Cotton yellow, Congo brown G, Direct yellow G, Direct orange R.

Dyeing both Fibres, but different Shades.

Titan marine blue, Azo blue, Diamine black BO, BH and RO, Diamine blue black E, Benzo blue black G, Diamine blue 3B, BX and 3R, Benzo Azurine 5G, Hessian violet, Titan blue, Azo mauve, Congo brown, Diamine brown V and Diamine brown G.

Dyeing the Wool Only.

Cotton brown A and N, Hessian purple NB.

Dyeing the Cotton Only.

Diamine blue 2B, Diamine sky blue, Zambesi blue R and B, Benzo Azurine G and Fast Congo blue R.

Julius Leisel.

Julius Leisel, general manager of the Philadelphia office of Messrs. Kalle & Co., died Thursday, the 8th of November, of heart disease.

Julius Leisel was one of the best known men in the dyestuff trade, and had a host of friends in Philadelphia, New York, and in the Southern States. Through his death Messrs. Kalle & Co. loose one of the most useful members of their staff. Mr. Leisel was known as a very clever and smart salesman, with an extensive knowledge of aniline colors. The TEXTILE WORLD sincerely regrets the death of Mr. Leisel and extends its condolence to his family and friends.

Carbonizing Wool.

Where the Merrimac Chemical Co.'s carbonizing solution is used, reduce with six parts of water, making density of bath about 8° Beaume; immerse the wool in this bath (which can be used in a wooden tank) until well saturated, then dry the wool for a few minutes in the hydro-extractor to remove surplus moisture, and then place in the carbonizing oven or kiln and heat to 200° to 220° Fahrenheit for about an hour and a half. A temperature as high as 250° Fahrenheit may be used, but the time in the oven is then reduced. This will perfectly carbonize all burrs and woody particles, so that they can be easily removed by the duster or burr picker. The wool is afterwards rinsed in clear water, with the addition of a little weak ammonia water. The solution can be used over again, adding enough from time to time to replace that carried off in the wool. If the burrs are unusually large, make the bath 10° to 11° B.

If the process is carefully carried out, the wool will be left in a beautifully soft condition, with none of the harsh feeling caused oftentimes by acid treatment, and the color will be whiter. This solution is perfectly neutral, and contains no sulphuric acid.

Practical Experience With the Use of Colors Produced Direct Upon the Fibre.

DR. EDWARD LAUBER AND DR. LUIGI CABERTI IN DR. ADOLPH LEHUE'S FAERBER-ZEITUNG.

One of us, together with E. Racoursky, has already at one time reported in this journal about the usuage of various substances for printing cloth, such as hydrochlorate a-naphtylamine for bordeaux and benzidin sulphate for puce.

On account of their fastness to soap and chlorine, and possessing sufficient fastness to light, the two above mentioned colors have quickly become the favorites of cloth printers, whereas the use of red dyestuffs, such as naphtalymin red, amidoazobenzol, paranitranilin and phenitidin red is not so great; firstly the dyestuffs are not possessed of great fastness to light and the last mentioned color is too high in price. Most of the dyes dye uneven and produce a kind of an orange red shade, which is caused by the impurity of the products.

Only of late, thanks to the firm of Cassella & Co., who manufacture a pure paranitranilin, it was possible to produce upon the fibre an even and pretty red. Already to-day this red is in strong competition with alizarin red. The same will be of great usefulness in consequence of its capability of combining with anilin dyes for producing manifold colored articles, as also for discharge and reserve articles.

Samples dyed with paranitranilin red were exposed for four months direct to the sunlight and at night to electric light. The color suffered somewhat, but after renewed soaping the color was again fairly well restored and warrants the use of the red.

The red distinguishes itself for its resistance against soap, chlorine and alkali, properties which permit the dyestuff to be used instead of alizarin red, principally in Italy, where usually goods are washed in a hot wood ashlye.

Following we report our experiences which we have made in practice of more than 10 months.

In regard to the bleaching of certain pieces for the direct colors, it is necessary that the goods should be thoroughly singed, sheared and brushed so that all little knots and impurities are removed from the cotton goods before they are prepared with the alkalic B-naphtolsodium solution. This is under all circumstances necessary when benzidinepuce is used; the smallest elevation in the weft, hinders in the printing the impregnation of the diazotized solution on that particular spot, and through the non-impregnation arise reddish spots on the ground of the goods.

These little knots in the goods which only were half removed by the shearing knifes, should then be entirely removed by nappers, as the same are very loose and when the weft is treated with the alkali, these half knots are so weakened that in the process of printing they fall out altogether, where through small light spots arise in the ground.

The preparing of the B-naphtolsodium solution is done best in agate vessels as the solution in wooden vessels usually gets a yellowish tone.

Creases in the weft should be absolutely prevented in the padding rolls as also in drying room, otherwise by printing the cloth light stripes will appear.

(To be continued.)

Recipes for Dyers.

VIOLET BLUE ON SILK.

For 10 lb. silk, prepare a dye-bath with 1 lb. soap, a little acetic acid, and 3 oz. Induline R, dyeing at the boil to shade, then lift, rinse, revive in a weak acetic acid bath, and dry.

FAWN DRAB ON WOOL.

For 100 lb. wool, prepare a dye-bath with:

10 lb. Glauber's salt,
2 lb. Sulphuric acid,
½ oz. Induline R extra,
1½ oz. Rosinduline G,
2 oz. Fast Yellow G;

working at the boil.

DARK LAVENDER ON WOOL.

For 100 lb. wool, the dye-bath is made with:

10 lb. Glauber's salt,
2 lb. Sulphuric acid,
1½ oz. Induline R extra,
1¼ oz. Rosinduline 2 B,
1½ oz. Fast Yellow G;

working at the boil to shade.

DARK BROWN ON HALF-WOOL.

For 100 lb. half-wool, prepare a dyebath with:

1¾ lb. Tabora Black,
14 oz. Nyanza Black,
2½ lb. Orange TA,
10 lb. Glauber's salt;

working at the boil for one hour.

BRIGHT OLIVE GREEN ON WOOL.

For 100 lb. wool, prepare a dye-bath with:

3½ lb. Alizarine Cyanine Black G,
½ lb. Anthracene Yellow C,
2½ lb. acetic acid.

Enter the goods at a temperature of 150 deg. F., heat to the boil and work for 3-4 hour., then lift, add to the same bath

2 lb. fluoride of chrome,

re-enter the goods and work for 1 hour longer; then lift, wash and dry.

DARK GREY ON HALF WOOL.

For 100 lb. half-wool goods, prepare a dye-bath with:

9 oz. Mikado Orange G,
4½ oz. Diamine Black BH,
2 oz. Sulphon Azurine,
3 oz. Croceine Orange,
10 lb. Glauber's salt,

working at the boil for 1 hour; then lift, wash and dry.

PALE FAWN BROWN ON COTTON.

For 100 lb. cotton, prepare a dye-bath with:

2 lb. Mikado Orange 4R,
3 oz. Benzo Fast Grey,
20 lb. Glauber's salt;

working at the boil for 1 hour., then lift, wash and dry.- [Dyer and Calico Printer.

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Correspondence Schools.

We mentioned last month the receipt of a number of publications relating to the "Correspondence Schools," at Scranton, Pa Among these, and of most interest, are a large number of letters, nearly two hundred, written by students in respect to their experience and opinions of the system. It is the most original agency for technical education that has ever been devised, capable of an extension that has no visible limit, and portends a time when we will not set off a few of the most fortunate for education, but educate all up to the limits required in the application of the skilled arts. One effect will be to raise the standard of the ordinary courses in technical colleges and schools, because mediocrity can be attained at a tithe of the expense and in ways more congenial to most students.

The habit of writing out exercises is a good one, good in all kinds of mnemonic effort, and when to this is added the interest of a communication personally addressed, and the environment of a home, it is easy to discern the attraction of a correspondence system.

Among the papers mentioned is one sheet of examples in hydraulics that as a collection of educational problems is the best we have ever seen. When a set school book is done, and the plates made, there is an end, but in the present system a tentative course is possible. Change and improvement can go on continually; not only this, the problems submitted can be nicely graded to the requirement and capacity of the student, and can, by the facility for change, be made relevant to particular examples or practice.—*Industry, San Francisco, Cal.*, Oct., 1894.

—The Crossley Mfg. Co. have placed in their new mill at Auburn, Mass., five (5) Apperly Feeders of improved construction, built by Geo. S. Harwood & Son, Boston, Mass.

Leather Belts.

No one using leather belts can afford to be indifferent to their care. There is a certain amount of elasticity in all good leather belting, but time and continued hard work seem to destroy or at least weaken its power. Then comes the question whether it is better to simply tighten the belt or use some form of dressing. Experience of many very practical observers seems to favor the use of a good dressing, as tightening the belt strains it and calls for more engine power. A dynamo engineer who is transmitting 60 65 h. p. with a 50-foot link belt 8 inches wide, running from a 72-inch pulley on driving shaft to a 13-inch pulley on dynamo, claims that freedom from jumping and flickering of the lights is due entirely to the belt dressing used and that tightening never helped. The superintendent of a large printing establishment has an 18-inch main belt now running its eight year which has never been taken up, and it would be extremely hard to convince him that the dressing used does not preserve the life of the leather and keep it soft and elastic. Of course one should be careful what sort of dressing is used. Soap, rosin, tar and tallow should not be used at all. Even castor oil is criticised. The dressing used in the two cases cited was Dixon's belt dressing and leather preservative, which was the only article that would start the big driving belt used at the Paris Exposition in 1878 and keep it from slipping. Circulars about the dressing will be sent to any one interested by the Dixon Crucible Co., Jersey City, N. J.

—The Whitin Machine Works, Whitinsville, Mass., have recently received orders from the Otis Co. at Three Rivers, Mass., for 20 of their revolving flat cards; from S. A. Crozier & Son, Upland, Pa., for 18 cards; from the Social Co., Woonsocket, R. I., second order 20 cards; from the Slatersville Mills, Slatersville, R. I., 9 cards.

AT LAST Union Goods and Hosiery made of Cotton and Wool in any proportion can be dyed a good serviceable Black in One Operation with the

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Naumkeag One-Dip Black Dye.

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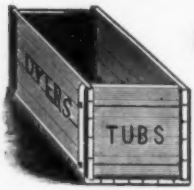

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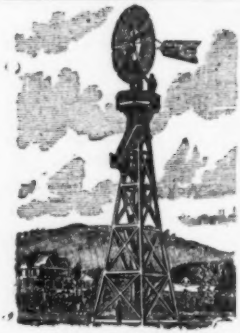

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STORM DEFYING WIND MILLS.

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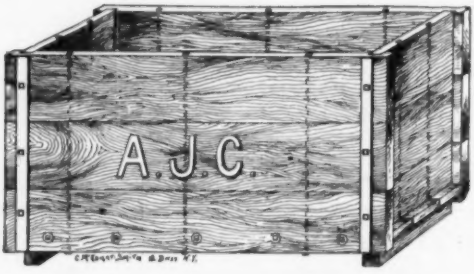

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No Batteries.
No Complicated Mechanism.
No Expense Maintaining it.
No Chance for it to get out of Order.
No Possibility of Watchman Beating it.

Automatically records time of arrival and departure of Employes. NO KEYS. CHECKS OR DETACHED PARTS OF ANY KIND. BEST AND CHEAPEST.

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—The Industrial Journal says that the removal of the woolen machinery business from the Sebec (Me.) Woolen Mills to Topeka, Kansas, may be for the advantage of Sebec. There is a magnificent water power there, and the ownership has long been divided, the woolen mill having an important share. Now that this is removed, it is hoped that some steps will be taken to combine for mutual benefit, and repair the dam, thus improving the power and leading to the establishment of some new business.

—A subscriber to the TEXTILE WORLD writes: "I have been in Spain for the past three months, and find the manufacturing business is very good in the vicinity of Barcelona, which is quite a manufacturing centre. I found a good many of the cotton spinners had equipped their machinery with the metallic drawing rolls, and were much pleased with them. The mills in Portugal are also showing a good deal of interest in this improvement."

—The Lunkenheimer Company, of Cincinnati, O., manufacturers of superior brass and iron specialties for steam, water, gas, oil, etc., have just issued their new illustrated catalogue and price list for 1895. It is an excellent thing of its kind, and should be in the hands of all interested.

—The New York Street Railway Journal's souvenir edition for October is a remarkably beautiful and interesting one. It marks ten years of substantial progress, and issued in connection with the thirteenth annual convention of the American Street Railway Association, at Atlanta, Ga., contains a vast and varied amount of reading matter. Among the interesting articles which this number contains is a history of the association, with numerous portraits; a magnificently illustrated article on Atlanta, Ga., and her prominent citizens, and other principal cities in the South; a history of the street railway industry; and an account of the history of the Journal itself, with illustrations. The cuts are of the finest, and the make-up could not be surpassed.

—Howland Croft, Sons & Company, of Camden, N. J., have lately put in four (4) Bramwell Feeds with all the latest improvements for worsted, built by Geo. S. Harwood & Son, Boston, Mass.

—Shaw, Esrey & Company, of Chester, Pa., have added four (4) Bramwell Feeds of improved construction, built by Geo. S. Harwood & Son, Boston, Mass.

—The Atherton Mills Co., of Charlotte, N. C., have placed their order for the increase of their mill with the Pettee Machine Works of Newton Upper Falls, Mass., for Revolving Flat Cards, Railway Heads and Drawing Frames.

—The Pepperell and Laconia Companies, of Biddeford, Me., have placed with the Pettee Machine Works of Newton Upper Falls, Mass., a large order for Revolving Flat Cards and Drawing Frames.

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PATENT SECTIONAL ALL IRON **TOWERS.**

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PLAIN ALL WOOD **TOWERS.**

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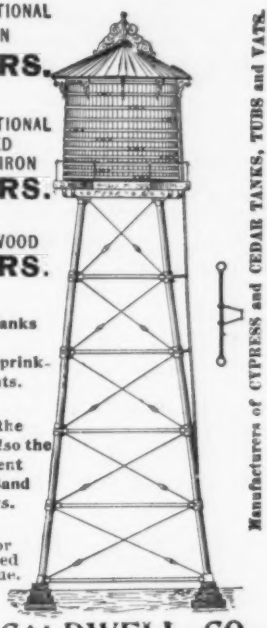

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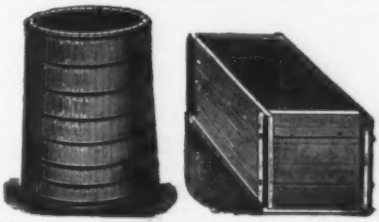

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Dyes in one bath, is absolutely fast in every respect and cheap in production.
Yarns and Cloths dyed in lots, or
WILL SELL RECIPE.
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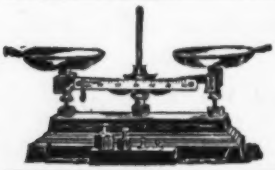

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Top and Sliver Dyeing Machines.

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These machines dye textile fibres in the Carding, Top, Sliver or Roving.
By their use, Re-Carding or Re-Combing is avoided.

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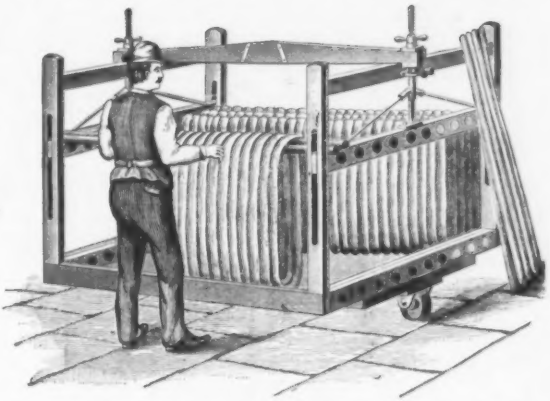
IT SPEAKS FOR ITSELF.

The only Practical, Simply-Constructed, Labor-Saving Device for Skein Yarn or Slubbing Dyeing ever offered to the Trade; will save THREE FOURTHS in labor and produce better results. Two Frames supplied with each machine.

Patented in the United States, Canada and Europe.



Manner of Filling Frame with Yarn, which is done in less time than the same quantity can be put on the sticks for hand dyeing.

NO FELTING OF FINE WORSTED OR WOOLEN YARNS.

FOR STANDING BATH WORK ON COTTON IT HAS NO EQUAL.

Operated by One Man. **One Frame Filled while other is being Dyed**

Back View of Machine showing its Operating Mechanism.

The Lowest Priced Machine In the Market.

Double the Capacity of Any Other.

Improved and Perfected.

Any further information, prices, etc., will be cheerfully furnished by

DILL SPOOL SUPPORT CO.,

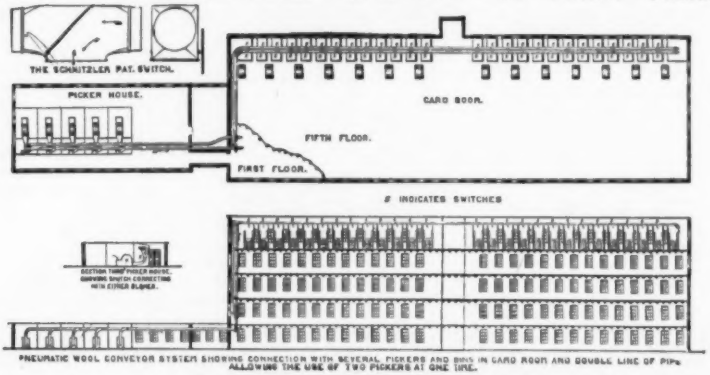
N. E. Corner Hancock Street and Lehigh Avenue, Philadelphia, Pa.

Where Machines can be seen in operation, and facts and figures will be furnished.

THE BOSTON PNEUMATIC CONVEYOR

For the Rapid Handling of Wool, Cotton Stock, Rags, Excelsior, Jute and all kinds of Fibrous Material, wet or dry.

Using the Boston Patent Wool Fan and Patent Switch.

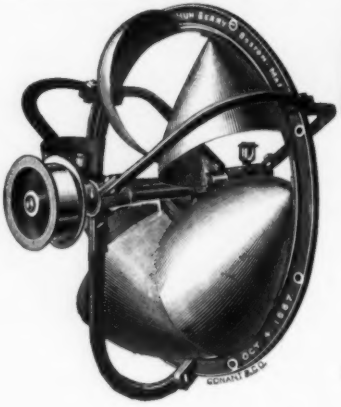


PNEUMATIC WOOL CONVEYOR SYSTEM SHOWING CONNECTION WITH SEVERAL PICKERS AND BINS IN CARD ROOM AND DOUBLE LINE OF PIPE ALLOWING THE USE OF TWO PICKERS AT ONE TIME.

MANUFACTURED ONLY BY

BOSTON BLOWER COMPANY,

BOSTON, MASS.



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Manufacturer of

Ventilating Wheels

For drying all kinds of Material, and for removing Steam, Smoke or Gas.

This is the only Wheel manufactured that has no back draught on the delivery side.

Send for a Circular to

No. 23 West First Street,

BOSTON, MASS.

—At the Philadelphia home office of the Guarantors Liability Indemnity Co., of Pennsylvania, Manager Richard F. Loper informed us that the company were planning to greatly extend their operations over the country during the coming year. The Guarantors Co. have been agressive and have secured a large constituency by the fine showing of their affairs. It is ably officered with Hon. Thos. V. Cooper as president, and Richard F. Loper, general manager.

—Lindsay, Hyde & Co., York St., Philadelphia, now offer for sale all the wood and iron patterns, templets, gauges, and guage staffs for self acting mules, made by the Bridesburg Mfg. Co., having purchased the same of the Bridesburg Co., also the patterns for the Bridesburg wool picker. Mr. Lindsay of the firm reported to us recently that they were in excellent shape to do general machine repairing.

—The M. A. Furbush & Son Machine Co., of Philadelphia, report somewhat of an improvement in the woolen machinery trade.

—The Imperial Boiler Compound of the Imperial Chemical Co., Philadelphia, is finding a steady demand. At the company's office we learn that all signs point to a revival of business and a larger call for this well established production.

—W. W. Altemus & Son, Philadelphia, are experiencing a healthy call for machinery and report for the past month a good gain of business. The firm have a well established trade and a fine reputation in the production of bobbin and cop winders, spoolers, beamers, warp mills, reels, etc.

—Mr. R. A. Doxey, of Brooks & Doxey, machine builders, Manchester, Eng., recently made the rounds of their American customers accompained by their agent, George Ingham.

—Mr. Castner, of Castner & Curram, Philadelphia agents for Pocahontas Coal Co., stated last month that orders were slated several months ahead for Pocahontas Coal for mills and factories.

—John Wood, Jr., Conshohocken, Pa., informs us that the strong merits of his patent water tube steam generator are appealing to the good judgment of many users of boilers. Concerning these special advantages Mr. Wood will forward interested parties a comprehensive circular. He will also furnish finely executed cuts of boilers with sectional view. The John Wood, Jr., general rolling mill and casting works are many years established.

PASSENGER AND FREIGHT
ELEVATORS
THE GRAVES ELEVATOR CO.
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HODGES BUILDING, DETROIT.
2500 IN USE

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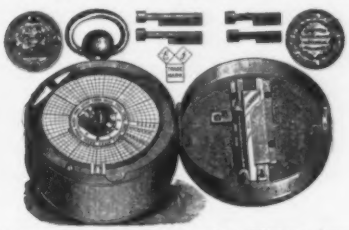
WATCHMAN'S IMPROVED TIME DETECTORS
12 and 24 Different Keys, with Safety Lack Attachments. U. S. Patents, 1875-76-77. Re-issue 1880

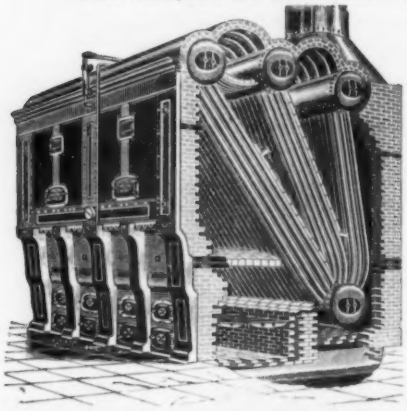


CENTENNIAL EXHIBITION, 1876—Highest Award and Medal of Honor for Portability, SECURITY and general adaptation to the purpose intended.
AMERICAN INSTITUTE EXHIBITION, 1878—Medal of Superiority. 1879—Medal of Excellence. 1880—Diploma.
ATLANTA, GA., COTTON EXHIBITION. 1881—Diploma.
CHICAGO, ILL., NATIONAL EXHIBITION FOR RAILWAY APPLIANCES, 1883—The only Medal for the most Complete and Perfect Instrument.
This Watchman's Time Detector contains all modern improvements. The only perfect instrument in the market. Warranted in every way. It cannot be tampered with successfully.
WARNING. Suit will be brought against all concerns selling or using Watchman's Time Detectors, infringing on my patents.
E. IMHAUSER,
206 Broadway, NEW YORK.

HYDRAULIC AND ELECTRIC PASSENGER AND FREIGHT
ELEVATORS
BELT AND HAND-POWER ELEVATORS AND ELEVATORS OF EVERY DESCRIPTION.
WITH AUTOMATIC DOORS OR GATES
PENN ELEVATOR ENGINEERING CO.
WORKS, BLOOMSBURG, PA.
PHILADELPHIA OFFICE, 516 COMMERCE ST.

THE "STIRLING" WATER TUBE STEAM BOILER.

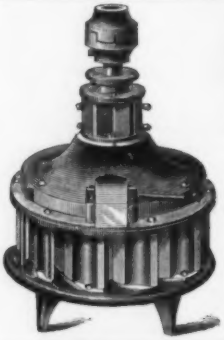
Over 150,000 H. P. in use. 45,000 H. P. sold in 1892.



Absolutely safe at high pressure. Not an ounce of cast metal used in its construction. WE CAN PROVE to your entire satisfaction that the "Stirling" will give much higher average economy, with far less expense for repairs, than any boiler on the market to-day, and in proof of our claims we can refer you to some of the largest firms in the Country Please do us the favor to investigate before purchasing elsewhere.

Prices very reasonable. Catalogues, testimonials and complete information promptly furnished.

J. BRADFORD SARGENT,
8 OLIVER STREET,
BOSTON, MASS.



BURNHAM'S

Percentage:
Full Gate - 84
¾ " - 84
½ " - 82

NEW IMPROVED
STANDARD TURBINE.

It gives on either a Vertical or Horizontal shaft more power for its price, yields a greater percentage for water used, either with full or part gate drawn, and is the simplest, most durable and best finished wheel made. Send for illustrated catalogue and state head of water and power required.

Burnham Bros., York, Pa.
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MANUFACTURERS OF

THE BALANCED GATE
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Suitable for Light or Heavy Service.

Globe Outer-Cases and special Wrought or Cast Iron Flumes.

SUITABLE FOR ANY SITUATION.

GEARING of all kinds, SHAFTING, PULLEYS and everything required for a complete POWER PLANT.

SATISFACTION GUARANTEED. Mention this paper.

Designs and Estimates Furnished on Application. Send for Catalogue.

SECTIONAL PIPE AND BOILER COVERING

Flat and Round Asbestos Steam Packing. Get our samples and quotations before placing your order. **It will pay you.**

H. F. WATSON CO. Erie, Pa.
NASHVILLE. NEW YORK. CHICAGO

Fires.

—MASSACHUSETTS, New Bedford. Fire in the picker room of the Potomska Mill caused a loss of $2080.

—QUEBEC, Montreal. The building occupied by the Montreal Silk Mills Company was damaged to the extent of $10,000 by fire. Fully insured.

—RHODE ISLAND, Cranston. Fire in the buildings of the Cranston Print Works caused a loss of $25,000 to stock and building.

—RHODE ISLAND, Providence. The dye house of the Wanskuck Mill was damaged by fire to the extent of $1500.

—MASSACHUSETTS, Uxbridge. The woolen mill operated by Samuel F. Scott has been totally destroyed by fire. Loss $10,000. Fully covered by insurance.

—PENNSYLVANIA, Philadelphia. The Universal Carpet Works, operated by E. R. Priestly, at 2024 N. 10th St., have been totally destroyed by fire; loss about $20,000.

Facts and Gossip.

—INDIANA, Elkhart. The Elkhart Knitting Company inform us that the race bank alongside of their mill gave way, completely washing out the foundation, letting down a part of the mill. An engine, steam press, dye house and dyes, steam pipes, and other miscellaneous machinery, were lost. Loss about $6000. The company are at work building up the mill and repairing the damage, and expect to start up in from thirty to sixty days.

—MASSACHUSETTS, Millbury. The Dority Mill, operated by W. G. Farnsworth, has been purchased by the Riverdale Mfg. Co., who will move the machinery to their new mill at Riverdale.

—MASSACHUSETTS, Lowell. We have the report that the Massachusetts Cotton Co. are to form a new company to which the contemplated Southern mill of the company shall be leased.

—NEW HAMPSHIRE, Penacook. The Dustin Island Woolen Mills, which are operated by the E. S. Harris Estate, have been incorporated with a capital stock of $40,000.

—NEW YORK, Cohoes. We have a report that the machinery in the knitting mill of W. H. Spanswick is to be sold to satisfy the chattel mortgage held by James E. Mitchell.

—NEW YORK, Cohoes. James H. Wilson, has withdrawn from the Continental Knitting Co., and has been succeeded by Wm. B. Clark, as president; Walter L. Hermans succeeds Mr. Clark as treasurer. An addition is being built to the mill.

—NEW YORK, Jamestown. A. F. Kent has sold the machinery used in the Jamestown Knitting Mills to Hugo Schluter, who has not yet decided as to what disposition he will make of the purchase, but, being an experienced manufacturer, it is probable that he will start up a mill for the manufacture of knit goods.

—OHIO, Portsmouth. The Dix Knitting Works of this place, who are contemplating doubling their capacity, are negotiating with the Board of Trade of Topeka, Kansas, for the removal of their plant to that place. The company ask that a stock company be organized with a capital of $25,000. They are also negotiating with Fort Scott, Kansas.

THE DANFORTH BELTING CO.,
Manufacturers of
BELTING,
Aprons for Worsted Machinery, Roller Covers and Lace Leather.
221 Chestnut St., Philadelphia, Pa.

The Hathaway Patent Steam Trap.
This Trap is Durable and Simple, can be placed in any position and used in any Temperature.

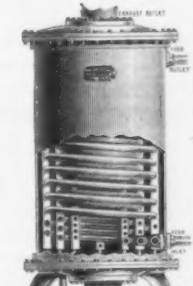
V.—Inlet. O.—Outlet. C.—Oil Chamber. Attach steam pipe to inlet V, and water pipe to outlet O. Adjust it by turning the nut at the end and opening the valve until all the water runs out and nothing comes but pure steam. Then turn it up until nothing but water comes, then screw up check nut.

It is the Cheapest Trap in Use.

The following are a few of the parties who are using the Trap: Kincaid Mfg. Co., Griffin, Georgia. Lorraine Mfg. Co.; Dunnell Mfg. Co.; Glenlyon Dye Works, Pawtucket. Valley Worsted Mills; Weybossett Mills; R. I. Locomotive Works; Riverside Mills, Providence. S. H. Greene & Sons, Riverpoint. Centreville Mills; Lippitt Co., Lippitt, R. I. Niantic Mill, E. Lyme, Conn. Peacedale Mfg. Co., Peacedale, R. I Phoenix Woolen Co., East Greenwich, R. I.

THOMAS J. TILLEY, Sole Manufacturer,
East Greenwich, R. I.

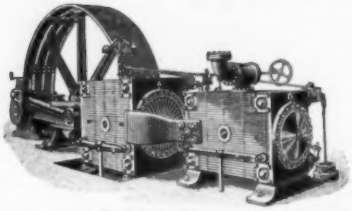
The National Feed Water Heater



is a Brass Coil Heater, supplying water to boilers at 212° F. It has acquired a national reputation for EFFICIENCY, RELIABILITY, and LOW PRICE. Its general use proves its quality, THE BEST. 500,000 Horse Power in daily use. Send for Catalogue of Prices and Users.

The NATIONAL PIPE BENDING CO.
68 River St., New Haven, Conn.

FRICK COMPANY, Engineers, WAYNESBORO, PA.



(Tandem Compound.)

Eclipse Corliss Engines,

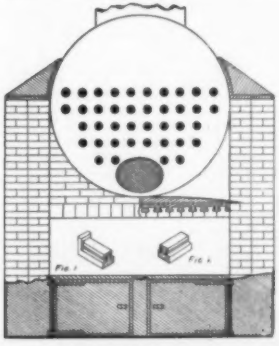
40 TO 2000 H. P., ALL STYLES.

Send for Illustrated Catalogue.

ALSO BUILDERS OF

Steam Boilers, High Speed Engines, and Ice-Making Machinery.

Steam Plants for Factories Furnished Complete.



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that **LAST** a

LIFE TIME.

No Masons' repairs ever required.
No shut downs necessary.
No overtime work.
Especially recommended for boilers hard fired.
Satisfaction always guaranteed.

SEND FOR CIRCULARS AND PRICE.

CHARLES OLSEN,

554 to 562 West 25th Street,

NEW YORK.

LORD'S BOILER COMPOUND

Is endorsed by the acknowledged authorities of the world; it is adopted by the United States and foreign governments, and is highly recommended in our standard treatises on steam engineering. To prove this statement, I will send one of these valuable books, costing from $1.00 to $10.00 per copy, by mail, free of charge with an order for the compound. A valuable pamphlet sent free on request. Address,

GEO. W. LORD, 316 Union St., Philadelphia, Pa., U. S. A.

THE ORIGINAL and ONLY RELIABLE

FAUL'S PATENT NEW YORK. **LUBRICATOR** CANDLE

Perfect Lubrication without Drip obtained by the use of Faul's Positive Lubricators. For further particulars write for catalogue.

W. J. FAUL, - 120 LIBERTY STREET, - NEW YORK.

LOCKE REGULATOR CO.,

REGULATORS FOR EVERY PURPOSE FACTORY SALEM, MASS. SEND FOR CATALOGUE WITH PRICES AND DISCOUNTS

—RHODE ISLAND, Woonsocket. William Pendergast, formerly of the firm of Donahoe & Pendergast, of Baltic, Conn., has purchased the plant of the Tremont Worsted Company, on South Main Street, and has started it up in the manufacture of fancy worsted goods. Employment is given to twelve hands.

—VIRGINIA, Portsmouth. We have a report that the directors of the Portsmouth Cotton Mfg Co. have decided to change their mill from a cotton mill, as was originaly planned to a knitting mill, to manufacture hosiery, underwear and yarns.

Silk.

New Mills.

—NEW YORK, College Point. We have information that Jacob Naf, a silk weaver of this place, is having a factory built on 24th St., which he proposes to start in the manufacture of silk ribbons at once.

—NEW YORK, New York. The H. Stearns Co. has been organized at this place with a capital of $1 50, to manufacture moire goods and ribbons. The directors are S. Gottschalf, Herman Stearns and Henry Manne, of Brooklyn.

Enlargements and Improvements.

—*CONNECTICUT, New London. In relation to the previously reported addition which Brainerd & Armstrong are building to their silk mill we have further reports that the building will be 60x60 feet.

—NEW JERSEY, Paterson. The Sterling Silk Company are negotiating with Benjamin Eastwood for the rental of a new four story building, which he is erecting, and which has 20,000 square feet of floor space.

—NEW JERSEY, Paterson. The Phoenix Silk Mfg. Co. are to make extensive improvements in their power plant. In the course of two months a 250 h. p. Watts-Campbell Corless engine will be installed.

—NEW JERSEY, Riverside. Ashley & Bailey, silk manufacturers, are adding 300 box looms to their plant at this place.

—NEW YORK, Whitehall. The Champlain Silk Mills are adding a dye department to their silk mill The new dye house will be 35x80 feet, and will cost $10.000.

—RHODE ISLAND, Anthony. The Coventry Co. are building a large and handsome office building, and contemplate a number of other improvements in the near future.

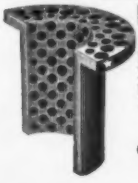
Mills Shutting Down.

Woolen.

—INDIANA, La Porte. The Fox Woolen Mills have closed down indefinitely, on account of lack of orders.

Knit.

—NEW YORK, Northville. The Northville Knitting Mill, which is operated by Mr. Hagerdorn, has closed down for an indefinite period.



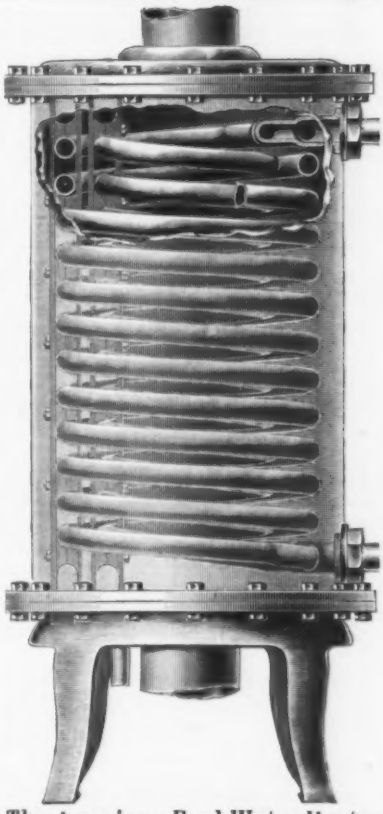
Metalined or Oilless Bearings

For Loose Pulleys and other bearings. Perfectly clean. No cutting or danger of fire from overheating. Send for Loose Pulley circular No. 5.

North American Metaline Co.

62 W. Av. cor. 3d St. Long Island. City, N. Y.

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN.



The American Feed Water Heater

The result of 14 years experience in the manufacture of various styles of heaters. We use only the best seamless **Copper Tubing.** The construction is such that there are **No Joints** inside of the shell, consequently there are **No Leaks.**

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THE WHITLOCK COIL PIPE CO.

MANUFACTURERS,

67 South St., Elmwood, Conn.

NEW YORK OFFICE, 67 Cortlandt Street.
Hine & Robertson, Agts.
JARVIS ENGINEERING CO., Agents for N. E.

Established 1876.

TRADE IMPERIAL MARK. IMPERIAL CHEMICAL CO.

A. WASSERMAN, Mgr. Dr. F. E. WASSERMAN, Chemist.

BOILER COMPOUNDS For the Prevention and Removal of Scale in Steam Boilers.

Please mail us specimen of your Boiler Scale, which we will analyze for you FREE OF CHARGE, and prepare a compound for your special case, and guarantee satisfactory results. Send us a postal card and we will call. Office 432 Market St. Factory and Laboratory, 324 St. John St., Philadelphia.

PL DIXON'S PERFECT LUBRICATING GRAPHITE.

The most Marvelous Lubricant Known.
Used Dry, or Mixed with Water, Oil or Grease.

NOT AFFECTED BY HEAT, COLD, STEAM OR ACIDS.

An Interesting and Instructive Pamphlet will be sent Free of Charge.

JOS. DIXON CRUCIBLE CO. Jersey City, N. J.

DID YOU EVER?

Hear of a Coal-dealer recommending an INDICATOR? Send for our Catalogue of the "ROBERTSON-THOMPSON" & "IMPROVED STRAIGHT-LINE" INDICATORS Reducing wheels Planimeter Hine Separators Oil Filters & extractors Blowing grate bars Feed water heaters and all kinds of other specialties, &c.

Hine & Robertson Co. 67 CORTLANDST N.Y.

J. E. RHOADS & SONS MANUFACTURERS OF LEATHER BELTING GILT EDGE BELT PRESERVERS

239 MARKET ST PHILADELPHIA WILMINGTON, DEL.

Miscellaneous.

New Mills.

—MASSACHUSETTS, Lawrence. Mr. Rankin has started an establishment for the dyeing of hosiery and yarns in the new building on Oxford St.

—MASSACHUSETTS, Lowell. We are officially informed that Josiah Harriman is about to build a new mill for the manufacture of elastic webbing, on Cambridge St., to be 60x102 feet. Mr. Harriman expects to have the mill in operation by January 1st.

—MASSACHUSETTS, Springfield. A. D. Brown and John C. Daly have organized a company to be called the Mill River Mfg. Co., to manufacture braids of all sorts. Mr. Brown, we believe, formerly carried on a braid manufactory in the Whitcomb Building at Holyoke.

—NEW YORK, Frankfort. Work on the new linen factory at this place is progressing very satisfactorily, and the company expect to have the plant in operation in two weeks. All of the machinery excepting the spinning system, has been purchased.

—PENNSYLVANIA, Philadelphia. C. K Gartzke has awarded the contract to Matthew Schmid for the erection of a brick dye house, 16x30 feet, at 1824 Columbia Ave.

Enlargements and Improvements.

—CONNECTICUT, Bridgeport. The Salts Textile Mfg. Co. are building an addition to their mill, which will be used for the manufacture of velvet.

—CONNECTICUT, Turnersville. In relation to the new mill which we reported John T. Brown, of Norwich, as building at Hebron, we are informed by Mr. Brown that he has taken in J. H. Peckham as a partner, and that the company will conduct the business of the Uncas Novelty Company, Norwich, Ct., under the name of the Oakdale Cordage Company. The capacity of the plant is to be considerably increased by the addition of twenty-five braiding machines and 16,000 spindles. The company manufacture braided cordage, clothes lines, chalk lines, etc.

—NEW JERSEY, Paterson. It is reported that Auger & Simon are about to build a large addition to their silk dyeing establishment.

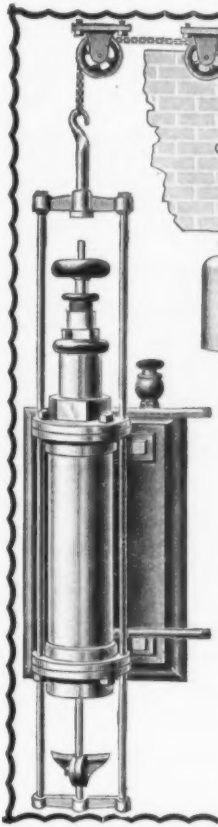
—OHIO, Zanesville. We have a report that Louis Lang is contemplating making an extensive addition to his dye house on Main Street.

—PENNSYLVANIA, Germantown. S. Friedberger, manufacturer of braids and laces on Fisher's Lane, has just completed an enlargement to his mill, and a 100 h. p. engine has been installed. The company contemplate another enlargement in the near future.

—PENNSYLVANIA, Easton. The rope and twine factory of J. Rinek's Sons has been started up, after having been idle since last May.

—The Morse Mills, of Putnam, Conn., have started a Bramwell Cotton Opener Feed, with all the latest improvements, built by Geo. S. Harwood & Son, Boston, Mass.

—H. C. Jones & Company, of East Conshohocken, Pa., have just added two (2) Bramwell Feeds of the latest improved construction, built by Geo. S. Harwood & Son, Boston, Mass.



The Curtis Patent Damper Regulator

Is the cheapest and at the same time the

Most Reliable and Efficient

It is the only regulator which is guaranteed to change direction on a variation of one pound steam pressure.

IT WILL CONTROL ANY DAMPER.

MANUFACTURED BY THE

D'ESTE & SEELEY CO.

29 to 33 Haverhill St., Boston.

New York Office: 109 Liberty St.

Chicago Office: 218 Lake St.

—MASSACHUSETTS, Millbury. The Atlanta Mills, of F. A. Lapham, are to have twelve new looms added to their equipment, and if the water wheel is unable to operate the extra machinery, a new engine will probably be put in.

—MASSACHUSETTS, Pittsfield. Messrs. Wilson & Horton are to add fifty new looms to the Bel Air Woolen Mill.

—MASSACHUSETTS, Wendell Depot. Joseph Seymour and Joseph Cummings, have leased E. A. Goddard's mill, on the Warwick Road, and have started up in the manufacture of shoddy.

—NEW HAMPSHIRE, Milton Mills. H. H. Townsend has begun the erection of an addition 32x60 feet, which will be used for an engine house.

—NEW HAMPSHIRE, Wilton. The Wilton Woolen Mill, which is operated by C. J. Amidon & Sons, are, it is reported, to have an extensive addition built to their dye house.

—NEW YORK, Warrensburg. Concerning the addition which we recently reported Messrs. Whitley & Co. were building, we are informed by the company that the addition will be 100x32 ft., two stories high, and that they are in the market and have not yet contracted for two sets of cards, four mules, ten broad looms, spoolers, fulling mill, rotary press, Bramwell feeds, and burr pickers.

—NORTH CAROLINA, Elkin. The Chatham Manufacturing Company are to erect a new building, 25 x 40 feet, which is proposed to be used as a picker house.

—OHIO, Fostoria. The Chicago Woolen & Waste Co. are to increase their capacity by the addition of new machinery. This is the new industry which we reported as organized in June; Mr. A. Baraclough is the proprietor.

—William Campbell & Co., Clifton Heights, Pa., have added two 60-inch Bramwell Feeds, built by Geo. S. Harwood & Son, Boston.

—Sayles & Jenks, Warren, Mass., have added two Apperly Feeds, built by Geo. S. Harwood & Son, Boston.

—The Pettee Machine Works, of Newton Upper Falls, Mass., have received a third order for Revolving Flat Cards for the Millville Mfg. Co., Millville, N. J.

ALEXANDER BROS.

BEST OAK BELTING.

PHILADELPHIA.

MECHANICS

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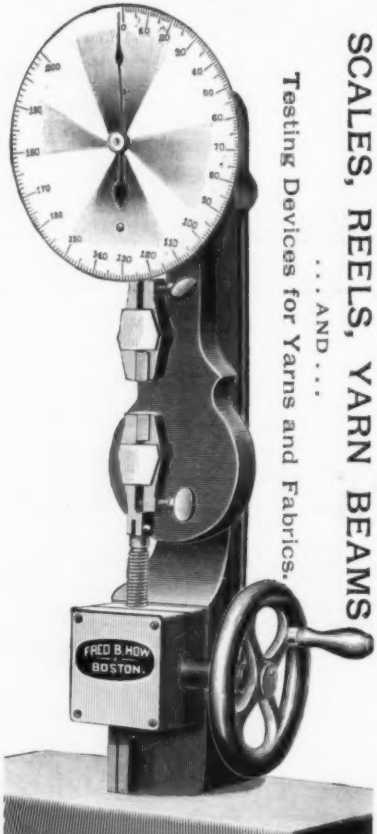
Cloth Strength Tester.



SCALES, REELS, YARN BEAMS

... AND ...

Testing Devices for Yarns and Fabrics.

FRED B. HOW, 216 Purchase St. Boston, Mass.

Woolen.

—CONNECTICUT, Montville. The Aaron Shaw woolen mills are to be started under the management of the Montville Woolen Co., after having been closed for the past 18 months. James Freeman is agent of the company, and G. W. Bramhall & Co., of New York, are the selling agents.

—INDIANA, New Albany. The New Albany Woolen Mills, which have been closed, and in the hands of the receiver for some time, have been purchased by M. Brown & Sons, of Philadelphia, who are to start up the plant immediately. Eighty looms will be started on Monday in the manufacture of jeans.

—MAINE, Dexter. Reports have it that the Flanders Woolen Mill, which has been closed down for some time, is to be started up by a company of capitalists. Those interested are Messrs. Douglass, Hussey, Pollock and Straw.

—NEW YORK, Greene. Concerning the starting up of the Greene Woolen Mills, which were formerly operated by A. J. Scot, and which we reported in October, we have further information that the name of the concern which is to start up the plant is the Union Improved Weaving Co., and that it consists of local and outside capital.

—ONTARIO, Sarnia. The Sarnia Woolen Mill, which has been closed on account of the failure of Smith Bros., will, it is reported, soon be started up under the management of Chas. S. Ellis.

—PENNSYLVANIA, Pottstown. The new Bannockburn Mills, which we several times reported as in progress of construction at this place, have at last started up with 182 looms running. The officers of the company are Wm. Auchenbach, pres., J. P. Bromley, sec., John Fegley, treas., and J. C. Watt, superintendent. The company have 83 looms in Philadelphia, which will be moved to their mill here as soon as possible.

—SOUTH DAKOTA, Sioux Falls. The mills of the Sioux Falls Woolen Mills Co., which have been idle for the past two years, are soon to be started up.

—ONTARIO, Brantford. The Slinsby Mfg. Co. contemplate increasing their capacity by the addition of new machinery.

—PENNSYLVANIA, Bloomsburg. The Bloomsburg Carpet Works are adding new machinery.

* PENNSYLVANIA, Stroudsburg. We have further reports concerning the new addition which is being built to the Stroudsburg Woolen Mill, that it will be 40 x 54 feet, three stories high, and of brick. A new dye house has also been completed in which the machinery is being placed. An electric light plant is also being put in.

—RHODE ISLAND, Glendale. Wm. Orrell is adding five looms to the equipment of his mill.

—RHODE ISLAND, Pascoag. A. L. Sayles & Sons, who operate the Granite Mills, are putting in 14 Crompton looms, in place of older pattern looms.

—WEST VIRGINIA, Martinsburg. We have a report that the business men of this place are raising $3000 with which to enlarge the Crawford Woolen Mills.

—WISCONSIN, Boscobel. The Boscobel Woolen Co., who have recently added new machinery to their plant, are in the market for two second hand Bramwell Feeds, 40 inch.

TO AVOID LOSS

NEVER SEND MONEY
IN LETTERS, BY MAIL.

ALWAYS

GET AN AMERICAN EXPRESS MONEY ORDER.

RATES LOWER AND SYSTEM SAFER THAN ANY OTHER METHOD.

DO NOT **CARRY MONEY WHEN TRAVELING.**

IT IS ENTIRELY UNNECESSARY IF YOU TAKE

THE TRAVELERS CHEQUES

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NYE & TREDICK,

Manufacturers of Plain and Automatic

CIRCULAR RIB
KNITTING MACHINERY

For Knitting Ribbed Shirts, Drawers, Tights, Combinations, Skirts, Jackets, Caps, Bicycle and Athletic Suits, Hosiery, Shirt-Borders, Cuffs, Etc.

Auxilliary Machines and Supplies.

Sewing, Crocheting and Finishing Machinery, Seamless Knitters, Winders, Loopers, Presses and Shaping Boards; also, Engines, Boilers, Shafting and Pulleys.

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CHICAGO OFFICE:

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ESTIMATES GIVEN FOR A

Complete Equipment of a Knitting Mill.

Franz & Pope Knitting Machine Co.,

BUCYRUS, OHIO.

ESTABLISHED 1868.

Original builders of Seamless Knitters.

WE STILL LEAD?

KNITTERS

Automatic Seamless Knitters, Loopers, Steam Presses, Hosiery Brushing Machines, Ribbers, Mitten Machines, etc.

CHICAGO OFFICE:
1001, Ellsworth Bldg.
353 Dearborn St.

Complete Hosiery Mill Outfits. Builders of Knitting Machinery for Special Purposes.

ALL MACHINES GUARANTEED.

Knit.

New Mills.

—*MAINE, Springvale. Messrs. Ogden & Sanborn, the proprietors of the new knitting mill which we reported as being started at this place, inform us that they will put in ten knitting machines, but that they have not come to any definite conclusion as to the character of the goods that will be manufactured. They expect to be in operation by Dec. 1st.

—NEW YORK, Crown Point. F. E. Heustis is interested in a project to establish a knitting mill at this place, for which it is said that half the necessary capital has already been subscribed. A party from Cohoes seems to be the most interested person.

—*NEW YORK, Waterford. We have the official information that the company which we recently reported William N. Pynes was interested in, will be styled the Novelty Knitting Underwear Co. They will put in 10 new knitting machines for the manufacture of men's and ladies' ribbed underwear, and will have capacity for 80 dozen per day. Steam power will be used. They will begin production December 1st.

—NORTH CAROLINA, Winton. G. W. Hollowman is interested in a new knitting mill which is being established at this place.

—PENNSYLVANIA, Mohn's Store. The Wyomissing Co., who operate the hosiery mill at this place, are contemplating establishing a branch factory at Reinhold's Station.

—*PENNSYLVANIA, West Chester. In relation to the Brandywine Knitting Co., we have further information that the company have rented the old stocking factory south of Barnard St., and that machinery is being put in. It is expected that operations will be commenced about the 1st of December. Last week this project was erroneously reported as in West Troy.

—PENNSYLVANIA, Womelsdorf. Darius Ruth, whom we reported in July would rebuild his burned hosiery mill at this place, has commenced its erection, and expects to have it in operation within two months. The mill will give employment to 30 hands.

Enlargements and Improvements.

—*GEORGIA, Barnesville. The Barnesville Underwear Mills inform us that the addition which we recently reported they were building, will be 50x80 feet, and will be an increase of 40 per cent. Ladies' ribbed cotton underwear will be manufactured.

—NEW YORK, Carthage. Messrs. Howard & Buck, proprietors of the Riverside Knitting Mill, are adding new machinery, which will double the present capacity of the mill.

—NEW YORK, Cohoes. Herman Bochlowitz, proprietor of the Riverside Mill, is contemplating the erection of an addition to his knitting mill, which will be two stories, 25x50 feet. The new addition will be used for the knitting and finishing departments.

—NEW YORK, Kinderhook. The Kinderhook Knitting Co. have just installed $1500 worth of new knitting machines.

—NEW YORK, Little Falls. Mr. Robert MacKinnon is about to erect an addition to his knitting mill on 2d St.

—NEW YORK, Oneonta. E. E. Scatchard, proprietor of the Oneonta Knitting Mills, is putting in a large number of new knitting machines.

THE
KEYSTONE KNITTER
For Seamless Hosiery.

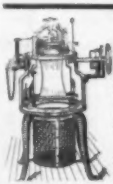
CYLINDERS OF
Forged Steel

With bevel top for perfecting the stitch in the plain fabric and closing the gore in the heel and toe.

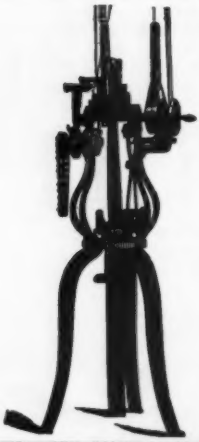
Automatic Ribbers, Loopers, Winders, Steam Presses, etc.

Keystone Knitting Machine Man'f'g Co.,
1716-20 NO. FIFTH ST., PHILADELPHIA, PA.

CRANE MFG. CO.
LAKEPORT, N. H.
Spring Needle Circular Knitting Machine
For Hosiery, Shirts, Drawers, Jersey Cloth and Stockinet.
A Specialty of Hardened Bladed Burr Wheels with Self Oiling Brackets.



The BALLOU
Automatic Ribbed Knitting Machine
Built with **Sectional Cam Ring** and the most perfect **weight take-up**. Best, Strongest and Most Durable Machine. **Two Feed Double Knee Machines.**
We can add to our own or other makes now in use. Also Brushing Machines. Lewis Jones, Bristol, Pa.



Pepper Manufacturing Co.

Lakeport, N. H.,

Manufacturers of

Knitting Machinery,

INCLUDING

Pepper's Flat-Ribbed Cuff Machine,

Automatic Welt and Loose Course Machine for Sock Tops. New Circular Stripes with Welt, Loose Course and Striping (Automatic), for Shirt Cuffs, Sock Tops, Hose Legs, Wristers, etc.

All kinds of

CIRCULAR RIBBED MACHINES,

For Men's Underwear, Ladies' and Misses' Hose Legs & Legnigs.

CORRESPONDENCE SOLICITED.

THE

Merrow High Speed Crochet

and Scallop or Shell Machines.

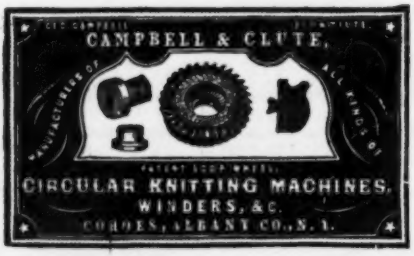
For finishing the edges of Knit Goods, Bed Blankets, Horse Blankets, or other fabrics.

For particulars and samples, address

MERROW MACHINE CO.,

133 Sheldon St., HARTFORD. CONN.

SHIRT Border Machines



Four and Five Section Flat Cuff Machines.

CYCLONE DRYERS

For Stockings, Underwear, Stock, YARNS, CLOTH, ETC.

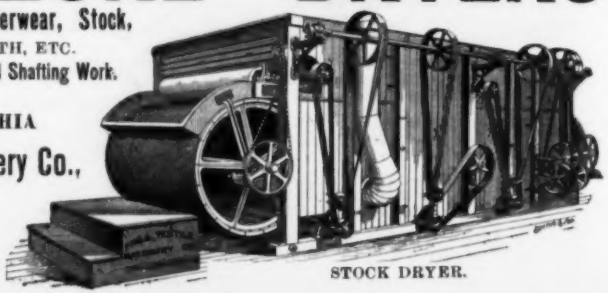
Textile Machinery and Shafting Work.

PHILADELPHIA

Textile Machinery Co.,

Hancock Street above Lehigh Ave.,

PHILADELPHIA, PA.



STOCK DRYER.

—NEW YORK, Troy. The Commercial Knitting Mills are to erect another addition, which will be used as a boiler house. A boiler will be wanted.

—*PENNSYLVANIA, Bath. In relation to the new addition which we lately reported the Bath Knitting Mills are making, the company inform us that 50 new knitting machines will be put in to manufacture misses' hose, and that it will triple the capacity of the mill. The company contemplate building a new dyehouse.

—*PENNSYLVANIA, Spring City. Messrs. Urner & Fritz inform us that the addition they are making to their plant will consist of 50 full automatic machines, cost amounting to $13,000, and other machinery, patent finishing dryers, worth about $ 000. They manufacture ladies' and gents' hose, and have capacity of 1200 dozen per day.

—*VERMONT, Bennington. The Cooper-Mfg. Co. are erecting a new wash room and dye house, two stories, to take place of old buildings, and giving some increase of room. They will probably add some knitting machinery a little later.

—WISCONSIN, Grafton. The Sheboygan Knitting Mills will shut down for the next three weeks, to put in an electric plant.

—NEW YORK, Cohoes. The Rankin Knitting Mill, which has been closed down for some time, is to be started up by William Nuttall, one of the proprietors of the Parsons Mfg. Co.

—NEW YORK, St. Johnsville. The hosiery mill of Chas. W. Severson, which has been closed since his failure, is to be started up with Byron Wilkes and Springer Walters as proprietors.

—OREGON, Waterloo. Thos. Kay, who is reported to have purchased a controlling interest in the Waterloo Hosiery Mill, contemplates starting up the factory as soon as possible.

—VIRGINIA, Union Mills. The Union Mills, which have been idle for some time, are making preparations to start up their plant under a corporate company. This is a six-set knitting mill.

Union Special Sewing Machine Co.

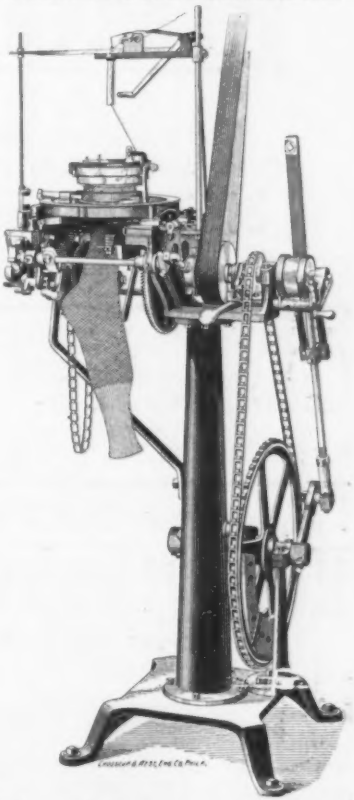
A fine illustration of the new sewing machine for covering trimmed seams, introduced by the Union Special Sewing Machine Co., will be found on another page. In the knitting trade this machine is of the utmost value as it performs a work which we believe has never before been so perfectly and quickly accomplished. It secures an improved seam on underwear, which, according to the verdict of many jobbers is the best seam made. The details which accompany the excellent cut should be carefully noted. As showing the superior achievements of the Union Special Co.'s machines in other branches of work, the ordinance department of the U. S. Government reported their sample work as standing the highest test for strength, being the result of the Government test at Watertown Arsenal, Mass., July 30th and Aug. 3d, 1894. An interesting folder detailing the report and stating weight of testing machine, etc., can be had by application to any of the Company's offices.

AUTOMATIC

SEAMLESS KNITTER

For making Seamless Hosiery of all Grades.

BEST QUALITY FABRIC.
LARGEST PRODUCTION.
SMALLEST COST FOR LABOR.



Plain and Automatic Machinery

For Knitting Ribbed Shirts, Drawers, Combination Suits, Skirts, Tights, Shirt Borders, Cuffs, Sleeves, Tops for Half-Hose, Hosiery Etc.

ALL OUR MACHINERY GUARANTEED IN EVERY PARTICULAR.

NATIONAL

Automatic Knitter Co.,

724, 726 and 728 Cherry St.,

PHILADELPHIA.

Why do Knitting-Machine Builders Try to Produce a Machine to Make a

BRANSON SOCK?

JAS. L. BRANSON,

OF THE BRANSON MACHINE COMPANY,

506 St. John, St., Philadelphia,

Is the original inventor and manufacturer of this class of Machines, and, like most originators, manages to keep ahead of all imitators. Send for Circular A.

KNITTING MACHINE CYLINDERS.

PAXTON & O'NEILL,

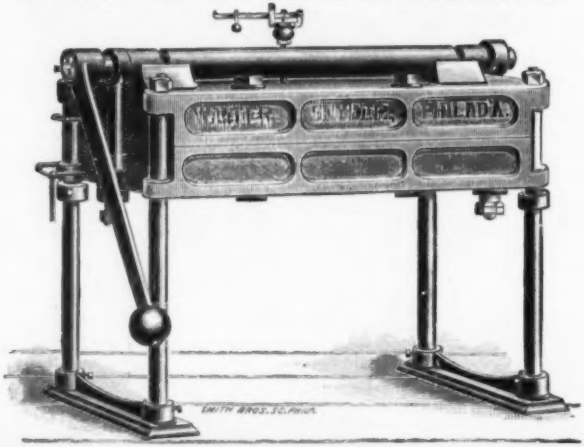
129 Bread Street, - - - Philadelphia, Penn.

Originators of the Weldless Forged Steel Cylinder. Dials, and Cylinders all sizes up to 24 inch, for the different Circular Rib Frames, Seamless Knitters, etc. The Finest that can be cut, and the Best as to Material Accuracy and Durability.

EVERYTHING FOR

Hosiery & Undewear Knitting Mills

NEW OR SECOND-HAND.



JAMES TAYLOR, 835 Arch Street, PHILADELPHIA.

Woolen.

New Mills.

—MASSACHUSETTS, Lawrence. Frank Butler, of the Arlington Bank, is principal projector in a new company which is being organized at this place to erect a $100,000 worsted mill.

—*MASSACHUSETTS, Lowell. Arthur P. Knapp, who is about to start up the Nesbitt Mill on Howe Street in the manufacture of worsted yarns, informs us that the plant will be equipped with one card, two combs, 1250 spindles and the necessary drawing and twisting machinery. Mr. Knapp expects to run on commission until well started. The Nesbitt Mill, which was built two years ago and which has never been occupied, has been rented by Mr. Knapp, who will put in sprinklers and an automatic fire alarm.

—NEW YORK, Amsterdam. A company has been formed at this place under the name of T. Romeyn Bunn & Co., by T. R. Bunn, John Smart and Eugene Ostrander, all of Amsterdam, and Ferguson Janeson of Fonda. The company will manufacture a high grade of Smyrna rugs.

—ONTARIO, Sundridge. We have a report that Mr. Irving of Merrickville, is contemplating the erection of a new woolen mill at this place.

—*RHODE ISLAND, Harrisville. Work on the rebuilding of William Tinkham & Sons' woolen mill, which was burned in January last, is about completed, and the machinery will soon be installed. The company expect to be in operation by January.

Enlargements and Improvements.

—CONNECTICUT, Glenville. The Hawthorne Mills Co. contemplate making extensive improvements in their power plant.

—CONNECTICUT, Staffordville. The Staffordville Woolen Company are putting in twelve new looms, thereby doubling their capacity.

—*CONNECTICUT, Winsted. Concerning the addition which we reported the Winsted Yarn Co. were building, we are officially informed that production of goods will begin November 15, and that 300 spindles and one set of cards are being added.

—MAINE, Camden. Twelve new looms are being placed in the Mt. Battie mill.

—MAINE, Skowhegan. Lewis Anderson & Co., proprietors of the Coburn Woolen Mills, have purchased for $12,500 the Dane Mills on Mill St., which they will probably fit up and operate in connection with the Coburn Mills.

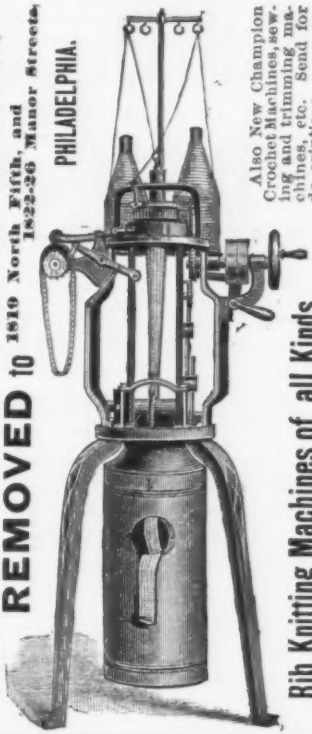
—MASSACHUSETTS, Fitchburg. A new addition 2 stories high is being built to the Star Worsted Mills, which will be used for spinning and carding purposes.

—MASSACHUSETTS, Lawrence. Reports have it that Brown & Ackroyd are adding 2000 spindles, three twisting frames, and four spoolers, and that they have rented considerable more room.

—MASSACHUSETTS, Lawrence. W. H. Hanson, whom we reported as about to enlarge his plant, informs us that by the first of January he will double the capacity of his plant by the addition of 14 looms in the manufacture of worsted dress goods and cotton webbing. He is in the market for looms, mill supplies, shuttles and electric lighting apparatus.

—*MASSACHUSETTS, Lawrence. The Washington Mills Co., Wm. M. Wood., treasurer, inform us that their recently reported addition will increase their capacity 25 per cent. and will give employment to about 250 hands, in the manufacture of worsted yarns. 2000 spindles will be added.

CHAMPION SEWING MACHINE COMPANY,
REMOVED to 1819 North Fifth, and 1822-26 Manor Streets.
PHILADELPHIA.



Also New Champion Crochet Machines, sewing and trimming machines, etc. Send for descriptions.

Rib Knitting Machines of all Kinds.

WE NEED NO SPECIAL POINT

To prevent the needle from picking up the brass, nor special mechanism to prevent injury to the brass, for the needle in our looper never strikes anywhere but the centre of the point.

HEPWORTH & CO.,
Lehigh Ave. & Mascher Sts., Phila., Pa.

LACINGS For Overshirts and Underwear,
Both Tipped and Tasseled, and
OVERSHIRT NOVELTIES.
For Samples and other information, address
HEPNER & HORWITZ, 84 Leonard St., N. Y.

F. SCHOETTLE,
Manufacturer of Every Variety of Square and Round Boxes. Largest Facilities.
Paper Boxes for the HOSIERY TRADE.
312 Branch St., PHILADELPHIA

Stanton & Lewis, 316 & 318 Branch Street, Philadelphia, Pa.
Central Steam Forge.
Special Machinery for Forging Weldless Knitting Machine Cylinders. Dials of best Steel to order.

BRINTON, DENNEY & CO.,

Builders of a Full Line of

CIRCULAR RIB AND SEAMLESS Knitting Machinery,

For Underwear and Hosiery.

213 and 215 RACE ST.. - PHILADELPHIA.

GIBBONS FRAME

Sewing Machines, with or without Trimmers.

SPECIAL FEATURES:

Welting Machines, Finishing Machines, Machines for Sewing Wet Goods, Machines for Double Heel Work, Machines with Concealed Stitch for Tops of Stockings, Etc., Etc. Tables and Shafting with Transmitters.

All machines have Ball and Socket Bearings, with Hardened and Ground Working Parts

MACHINE JOBBING.

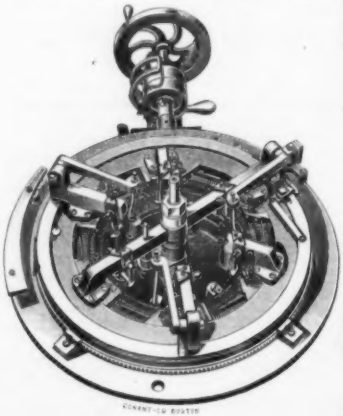
Manufactory, Second and Diamond Sts , Philadelphia.

SOMETHING NEW UNDER THE SUN

TO

Manufacturers of Ribbed Underwear,

Sweaters, Cardigan Jackets, Leggins, Cuffs, Etc., who are not acquainted with the



Leighton Knitting Machines,

WHICH

KNIT THE GOODS

WITH THE

Greatest Economy.

Manufacturers who are using The Leighton Machines, know that it **FILLS THE BILL** completely. Correspondence is solicited from parties wishing to establish a Knitting Plant, or who may wish to improve their present line of goods. Address,

Leighton Machine Co.

MANCHESTER, N. H.

Business Established in 1873.

DISCREPANCY IN PRINT

Carpets.

The mills generally are ready with new samples, and salesmen and agents are taking the road. Ingrains initiated the season as usual and complete lines were on show as early as the 15th of November. From the leading mills we learn that preparations for the spring trade have been made on the basis of a full season's business. Brussels, Wiltons, velvets, and moquettes are shown in probably slightly less variety, though with greater regard to coloring and select designing. In this critical period a pattern must possess features of superior art to find its way into the loom. Retailers are fairly busy, but unfortunately some of the large emporiums are forcing trade by unreasonable cutting. Brussels, velvets and moquettes have been scaled by some houses to ridiculous figures, and just at this time an interesting war is going on in Smyrna rugs. Nearly all the large buyers have visited the markets.

On page 31 of this issue will be found answers to a number of practical questions pertaining to textile matters, which will doubtless be of interest not only to those who have sought information from us, but to the general reader also. It is the purpose of the publishers of the TEXTILE WORLD to make it of real, practical value to its subscribers. This department of questions and answers will be a permanent feature, and any subscriber or advertiser seeking information on any technical or general subject pertaining to the textile industry is at liberty to send in his questions, which will be answered as promptly as possible, to the best of our ability. A discussion on any of the subjects touched upon is invited.

—The new Traver raveller, manufactured by A. L. Traver, Mellenville, N. Y., we understand is meeting with decided favor, and is demonstrating its value very satisfactorily. This machine is placed on trial, where so desired, in order that its merits may be fully tested before purchasing.

WM. COREY CO.,
Manufacturers of Knitting Machine
Latch Needles,
MANCHESTER, N. H.

Excelsior NEEDLES
The Best Hosiery Needle in the market.
Manufactured by
Wardwell Needle Co., Lakeport, N. H.

LOYAL T. IVES.
MANUFACTURERS OF ALL KINDS OF
SPRING
Knitting Needles
New Brunswick, N. J.

SPRING AND RIB
Knitting Needles.
Fine needles for Plush, Cap and Balbriggan work a specialty.
A sample 1000 will speak for themselves.
DAVID J. AMES.
PHILMONT, - NEW YORK.

ORION TREAT,
MANUFACTURER OF
SCREW RIVETED BALMORAL AND DOUBLE RIB NEEDLES.
(Patented May 6, 1890.)
Manchester Green, - - Conn.
All work guaranteed.

H. LYDALL & FOULDS,
Manufacturers of all kinds of
Knitting Machine Needles, Narrowing Points, Hooks, etc.
Pat. Screw Rivet Balmoral Needles a specialty
MANCHESTER, CONN.

STAR NEEDLE CO.
Spring Knitting Needles and Points from the Best Cast Steel. Satisfaction Guaranteed.
S. K. Paramore
Manager.
New Britain, Conn.

STEPHEN A. ASHMAN,
Forged Steel Cylinders and Dials
For Knitting Machinery.
3 Fetter Lane, PHILADELPHIA.

McCalvey Elevator Works.

These Philadelphia Works, of which C. F. Taylor is the general manager, were established, in 1835, by the late James McCalvey, and still occupy the original site and buildings, 602 and 604 Cherry Street. The business has been prosecuted by the McCalvey family without interruption. Improved hand power, steam and electric elevators are announced, and, for the construction of these, ample facilities and a thorough knowledge of such work is brought to bear. Manager Taylor informs us that they are ready at all times to give information and estimates.

—J. C. Goodwin, Philadelphia, has sold his automatic rib top cutter, and automatic trimmer machines to the Standard Machine Co., Philadelphia, who will have exclusive sale of them in future. Mr. Goodwin retires from business to take the road for a well known corporation.

—The paper box factory of F. Schoettle, 312 Branch St., Philadelphia, is largely employed on paper box orders from the hosiery trade. Mr. Schoettle is the leading Philadelphia manufacturer in this line and has a large and finely equipped factory in the centre of the city.

—The Harris patent device for protecting bolts of dye vats and tubs from corrosion is steadily gaining favor with the large establishments devoted to building tubs, tanks and vats. Amos H. Hall and the Burkhardts, of Philadelphia, have turned out several jobs of late with this bolt. The extra cost to a tank or vat by using the patent bolt is almost nominal, and the added protection from corrosion, it would seem, should insure its general adoption.

—One of the live dealers in new and second-hand machinery, in Philadelphia, is George L. Schofield, whose card will be found on another page. Almost everything in the line of textile machinery can generally be obtained from him. Mr. Schofield is closely allied to manufacturers of Philadelphia, and other sections, and is in position to serve his customers advantageously. His wareroom is located at 123 North Front Street, in the mill supply centre of Philadelphia.

—Alexander Logie, burlaps and jute yarns importer, New York, returned recently from a three weeks' visit to Dundee, Scotland.

CIRCULAR RIB KNITTING MACHINES,

Carefully designed and well made with Solid Forged Steel Cylinders and Dials, Segmental Cam Rings, Encased Take-up, Stop Motions, etc. Standard Sizes, Reasonable Prices. Also

KNITTING MACHINE CYLINDERS AND DIALS, CHAINS, JACKS, ETC.

If interested, address

W. STAFFORD & CO., West Mill St., Little Falls, N. Y.

Novelty Knitting Machine Co.,

MANUFACTURERS OF

AUTOMATIC CHECKERS, VERTICAL STRIPING MECHANISM.

SPRING NEEDLE KNITTING MACHINERY,

AND OTHER NOVELTY ATTACHMENTS

BURR WHEELS With Removable Hardened Wings, Shafting Hangers, Pulleys, Etc.

F. L. WIGGIN, Proprietor. LOWELL, MASS.

BOARDS FOR FAST BLACK DYERS.

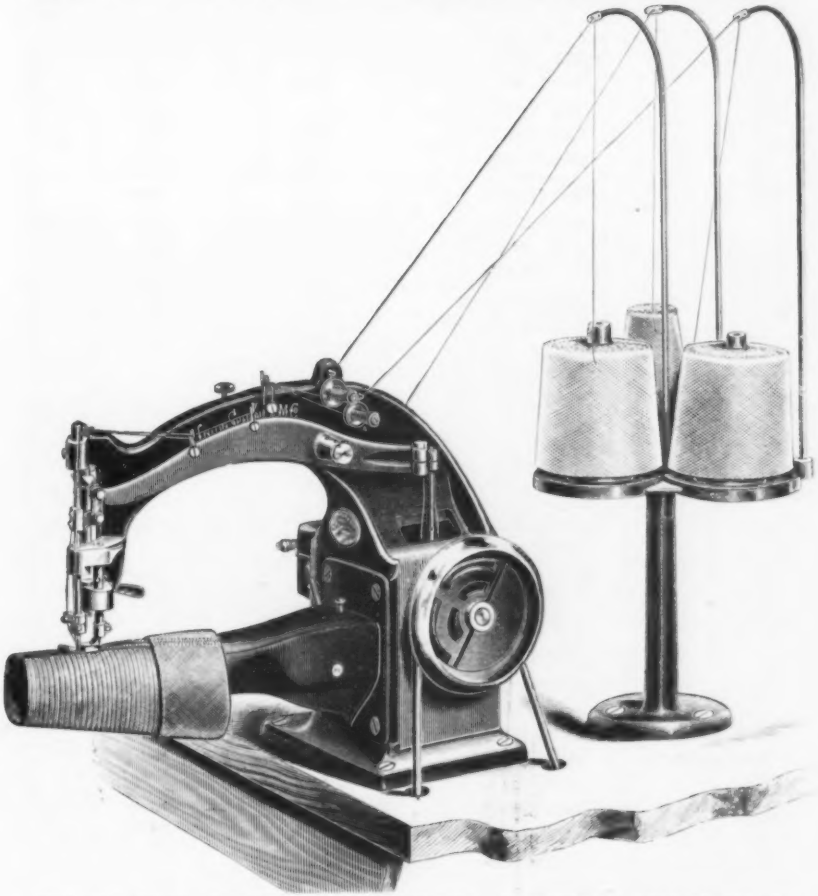
HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

OF INTEREST TO

Knit Goods Manufacturers.



THE NEW UNION SPECIAL CYLINDER MACHINE FOR COVERING TRIMMED SEAMS.

The Union Special Sewing Machine Co. recognizing the demand among knit goods manufacturers and jobbers, for an improved seam on underwear, has produced after much patient thought and experiment, and now offers to the trade its new **Side Wheel Cylinder Twin Needle Machine** for covering seams. Its product equals in wearing qualities and finish the regular full-fashioned goods and has been pronounced by leading jobbers the best seam made.

Send for Samples and Illustrated Catalogue.

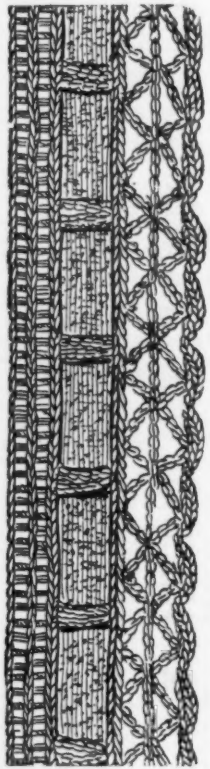
Union Special Sewing Machine Co.,

60 Michigan Street,
CHICAGO, ILL.

47 Leonard Street,
NEW YORK CITY.

17 South Street
BOSTON, MASS.

228 Market Street,
PHIDADELPHIA, PA.



The Continued and Increasing Sales

TO FORMER USERS, AND ORDERS FROM MANUFACTURERS
WHO HAVE HERETOFORE USED OTHER PROCESSES AND METHODS

Prove Most Conclusively, That

FRIEDBERGER'S EDGINGS

THE RECOGNIZED STANDARD FINISH

For Ladies' Jersey Ribbed Underwear,

—ARE—

PRE-EMINENTLY THE BEST,

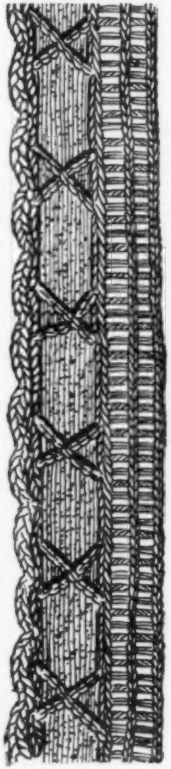
Thus substantiating all claims made for them in the advertisements in these and other columns during the past 3 years. Weekly production 1891, 75,000 yards; 1894, 600,000 yards.

SUPERIOR TO ALL OTHERS.

We are now making a line of Satin Ribbons.

Spring (1895) styles ready. Samples sent on application.

S. FRIEDBERGER, Mfgr. Braids and Laces, Germantown, Phila.



Mills Starting Up.

—CONNECTICUT, Jewett City. A. B. Burleson & Co. have started some of the machinery in the new mill which they have built at this place. The company manufacture fine yarns and sewing threads.

—NEW JERSEY, Gloucester City. Concerning the starting up of the old Washington Mills, we have the information that McFadden, Grove & Blakely, the owners, have let the contract to C. R. Makepeace & Co., of Providence, and that the plant, which is at present equipped with old style machinery, is to be fitted up with new and modern machinery. Mills No. 2 and 5 are to be started up first.

—SOUTH CAROLINA, Chester. The Chester Mills Co. have started up the Chester Mills at this place. This company is a reorganization of the old Chester Mfg. Co., and was organized in September.

—The Hartford Carpet Co have put in two of the large picker feeds to feed a big quantity, built by Geo. S. Harwood & Son, Boston.

—Alexander Smith & Sons Carpet Co. have four of the latest improved Bramwell Feeders feeding their wool-washers, built by Geo. S. Harwood & Son, Boston.

Hill's Patent Roving Can.

When ordering CANS

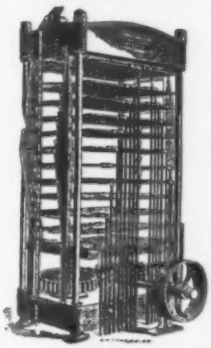
GET THE BEST.

Hill's Patent Star Bottom

Roving Cans.

made of the best IXXX Tinned sheets. Years of experience and improved methods of manufacture have enabled us to produce a Can unexcelled for strength, finish, and durability.

Jas. Hill Mfg. Co.. Providence, Rhode Island.



THE

CRAWFORD

Hollow Plate

Steam

Press

For Knit or Woven Goods.

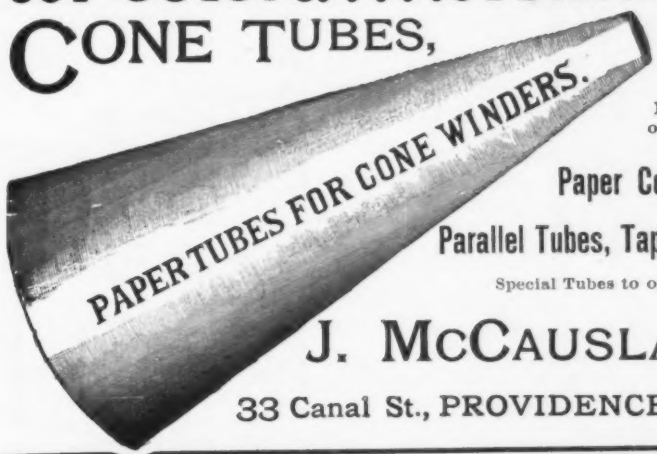
Is worth investigating

J. J. Crawford & Son

Nashua, N. H.

For Foster and other Winders,

CONE TUBES,



Manufacturer of all kinds of

Paper Cop Tubes,

Parallel Tubes, Taper Tubes,

Special Tubes to order.

J. McCAUSLAND,

33 Canal St., PROVIDENCE, R. I.

ROBERT E. LYNCH,

Cor. of Howard and Diamond Sts.,

PHILADELPHIA.

Printer of BANDS and LABELS for

Hosiery Tickets and Labels for Piece Goods, Carpets and Rugs.

Special Designs Furnished on Application.

Capital, $1,200,000.

100,000 SPINDLES.
Weekly Product 120,000 lbs.
14's to 160's.

HIGH GRADE

Cotton Yarns,

SPECIALLY ADAPTED FOR

Silk, Plush, Upholstery & Hosiery

MANUFACTURERS.

American Peelers. Sea Island. Egyptian Oottons.

Superior Qualities Combed and Carded—Furnished in singles, 2, 3, 4 and 6-ply chain warps, skeins, beams, spools, tubes, cones and Lisle Thread yarns.

Cops for Weaving and Twisting. Cops for Hosiery.

GLOBE YARN MILLS,

Fall River, Mass.

ARNOLD B. SANFORD, - - Treasurer.

Arnold B. Sanford, *Pres.* Arthur H. Mason, *Treas*
Capital Stock, $500,000.

Sanford Spinning Co

FALL RIVER, MASS.

30,000 Spindles. Weekly product, 50,000 pounds 14s to 40s.

NOVELTY COTTON YARNS,

FROM AMERICAN PEELERS AND EGYPTIAN COTTONS.

OUR SPECIALTY: Superior qualities of Hosiery Yarns, Natural Shades of Cottons, and in Colors, Jaegers, Mixes, and Bleached, Hosiery Cops on Long Tubes, Skeins, Tubes, Cones and Lisle Thread Yarns. Furnished in Carded and Combed Qualities in Singles, 2, 3 and 4-plies.

YARN DEPARTMENT.

The Eastern Yarn Market.

BOSTON, Dec. 5, 1894.

White Cop Yarn, Double and Single Roving. Spinners are running out of orders on heavy weight yarn. On the light weight yarns, some orders have been placed, and more will be placed later. Orders have been placed by hosiery manufacturers, and some orders have been given by ribbed goods knitters. Knitters are disgusted at the prices jobbers are willing to pay, and some have decided not to make light weight underwear. This applies especially to the ribbed underwear trade. The rubber lining trade is calling for considerable yarn at this time. We note, in going through the mills, that many of the winders are stopped, which indicates that orders are all run out of heavy weights. Unless new orders are placed, some of the mills will shut down. Orders have been placed for yarns for immediate use. Few orders are being placed ahead for future delivery. Raw cotton has advanced slightly, but spinners have about all the cotton they will need for six months to three years. The price of yarn is off.

Colored Yarns. Colored yarns are not doing so well at this time. The heavy weight trade is over and there is not the demand at this time for colors in the light weights. The heavy weight season will begin again in January. Until the heavy weights come in, we expect a slow trade for colored yarn. Fleece lined underwear is going to be in demand again in January. Clouded yarns and random effects are the coming styles for next season. Carded Egyptian yarn is in good demand in 1/20s, also Peruvian carded yarn is being largely offered. We note that much white yarn is being colored in the garment. Prices are off.

Combed Allen Seed and Egyptian. Spinners of combed yarns are very busy, and many of them are largely oversold. The sizes mostly purchased are in 1/20s mule spun, and 2/40s, 2/42s, 2/44s, 2/50s lisle, both in Allen Seed and Egyptian. This yarn goes mostly into balbriggans, but some orders have also been placed for ribbed underwear. The business has all been secured within the last three weeks. Prices are low, but spinners have been forced to sell cheap in order to keep going. We do not believe many contracts have been placed. Knitters are buying from time to time as they require the yarn. The orders for light weight goods are coming foward quite freely. The demand for heavy yarn is over for this season, although we note that some knitters will not go off heavy weights, as the light weight underwear is selling too low for them. The best goods at very low prices, are selling best. The hosiery manufacturers are also purchasing large quantities of combed yarns in 1/20s, and 1/25s combed Egyptian.

WOOLEN YARN.

More inquiry for woolen yarn is everywhere noted, and if the business pans out as well as it now looks, spinners will have more business than they can handle. The heavy weight season on cloth is always good for the spinners, and next season will be a particularly good season. Underwear and hosiery manufacturers are certainly going to be in the market later for a great deal of yarn. The "late" financial depression has so cleaned out stocks, that buyers have got to come in the market to purchase largely of yarn. The election has undoubtedly given much confidence to trade, and the foreigners are not going to be able to get so much business after all out of the American people.

Combined Capital Stock, $2,250,000 Total Spindles, 170,000

WM. D. HOWLAND, Treas. BYRON F. CARD, Agent.

New Bedford Mfg. Co.,
Howland Mills Corp'n, *
Rotch Spinning Corp'n.

High . . . . Grade Cotton . . . . Yarns.

Single or Twisted,
Combed or Carded,
Hosiery Yarns,
Chain Warps,
Skeins, Spools
and Cops;
also on
Beams

FROM 4's TO 120's.

BYRON F. CARD, - Selling Agent,

New Bedford, Mass.

WORSTED YARN.

Weavers continue busy on light weight goods and we believe a late trade is to be expected on same. Spinners are running all their machinery, but are beginning to look for new orders for next season. The tendency now is to lower prices on all fine Australian yarn, and spinners are quoting prices for next January delivery at a less price even than they quote at this time. As it is, spinners are delivering yarn as fast as they turn it out and can take no orders for immediate delivery. Next heavy weight season will undoubtedly develop the fact that we have *not* enough spinning to take care of the demands of weavers for worsted yarn. There are several causes for this state of affairs. In the first place many spinning mills have put in weaving machinery and are practically out of the market for sale yarns; then again, the newly developed Clay worsted trade takes thousands of pounds, and also the dress goods worsted yarns are calling for the use of much machinery; and again, the mills have been using thousands of pounds of cotton yarn, making what they call cotton worsted. Now that worsted yarn and wool is so cheap, manufacturers are going to use more wool and worsted yarn and less cotton yarn; hence, an increased demand for worsted yarn. Again, next season is going to call for a great deal of 2/50s worsted; we know to-day of one concern that cannot get 2/50s fast enough, and consequently has looms stopped, waiting for yarn.

English salesmen are in the market trying to sell yarn delivered in Liverpool, and are trying to sell it in English money. They are not making much headway. We note one large English house has a salesman on the road. He had been travelling for over three weeks steady, and had not even taken an order. The last heard of him he was making for Montreal, to take in New Hampshire on his way back.

We note there are one or two American concerns handling foreign yarns in the right way; they sell on 60 days, the same as American spinners.

GRANT YARN CO.,
COMBED AND CARDED COTTON
YARNS 40s and above. AND
FITCHBURG, MASS. WARPS

O. H. SAMPSON & CO,
YARNS,
BOSTON, 67 Chauncy St.
NEW YORK, 58 & 60 Worth St.
PHILA. 206 Chestnut St.

JAMES E. MITCHELL & CO.,
Commission Merchants.
122 & 124 Chestnut St., Philadelpia, Pa.
51 & 53 Summer St., Boston.
Cotton, Woolen & Worsted Yarns.
All numbers on Hand and Made to Order.

SAWYER, MANNING & CO.,
YARNS,
86 & 88 Franklin St., NEW YORK.

J. H. LANE & CO.,
Commission Merchants.
COTTON and JUTE YARNS
110 Worth St., NEW YORK.
24 Kingston St., BOSTON.
151-53 Fifth Ave., CHICAGO.

ALEX'R KING & CO.
YARNS.
FINE IMPORTED YARNS A SPECIALTY.
54 Leonard St., New York.

TILLINGHAST, STILES & CO.
COTTON YARNS
ALL NUMBERS.
Chain Warps, Skeins, Cops, Cones, Beams, Spools, Colored and Grey Yarns. Hosiery and Combed Yarns.
20 Market Square, Room 53. Providence, R. I.

TUCKER & COOK MFG. CO
MANUFACTURERS OF
WHITE AND COLORED COTTON WARPS
Nos. 6s to 30s,
On Beams, Jack Spools or in Chain
CONWAY, MASS.

HADLEY
SPOOL COTTON AND FINE YARNS
COMPANY
COTTON SPINNERS.
MILLS AT HOLYOKE, MASS.

SPINNERS OF
FINE COTTON YARNS
30s TO 100s.
Gray, Bleached, or Colored. On cop, in skein on spools, cones or tubes.
Fine Cotton Warps, single and two-ply, in chain, etc.
95 Milk Street, BOSTON.

Wilkes-Barre Lace Mfg Co.
SPINNERS OF
COTTON YARNS.
Double-Carded, Frame-Spun,
Double-Roving, In Skeins.
30s TO 40s, TWO-PLY ONLY.
Wilkes-Barre, Pa.

JAS. CHADWICK & BRO.
Limited.
Egyptian and Sea Island COTTON YARNS.
COP, SKEIN, WARP, OR CONE. 20'S TO 150'S.
ALSO FULL LINE OF IMPORTED YARNS, 40s TO 200s.
JERSEY CITY, NEW JERSEY. Branch Office, 241 Chestnut St., Phila.

Hosiery AND Weaving Yarn
ALBERT IVINS GROLL, BOSTON.

The J. R. Montgomery Co.,
Manufacture WINDSOR LOCKS, CONN.,
High Grade COTTON WARPS, IN FAST FANCY COLORS.
PRINTERS of COTTON WARPS, Wool, Worsted and Silk Yarns.
NOVELTY YARNS OF ALL KINDS.
BOUCLÉ, BOURITTE, FLAKE AND SLUB YARNS.

The largest mills are getting all the business.

Heavy weight samples will be opened up from Dec. 15th to Jan. 1st.

Weavers are quite surprised and not pleased at the firm stand taken by spinners in advancing the prices of yarn; later the weavers may get back on the spinners.

Weavers are not ordering ahead much on yarn; they are anxious to get off of light weight goods as there is no money in them, they say.

Manufacturers are not so scared today as they were last September.

Tops will undoubtedly be imported in larger quantities, as will also the finer counts of 2/40s, 2/50s, 2/60s and 1/60s.

Knitters are not getting many orders on wool goods at this time.

We quote as below:

DOUBLE ROVING WHITE COP YARN.

11s and 12s	15 cts.
16s	16 cts.
20s	17 cts.

Jaeger and Camels Hair,

10s to 12s	15 cts.

Cones 1 cent extra.

Other colors quoted on application.

Egyptian Combed.

1/10s to 12s	19 cts.
1/20s	20 cts.
1/34s	29 cts.
1/40s	32 cts.
1/45s to 1/50s	34 cts.

Cones extra price.

ALLEN SEED COMBED.

1/10s	20 cts.
1/40s	32 cts.
2/40s	37 to 38 cts.

WOOLEN YARN.

Will quote on inquiry, as there is too great diversity to give satisfactory quotation.

WORSTED YARN.

Fine Australian.

2/40s	80 to 85 cts.

Other numbers in proportion.

On other qualities of Australian, spinners will not quote at this time as they are awaiting developments.

Half-blood Domestic.

2/40s	.68 cts.

DOMESTIC.

1/4 Blood,	
2/28s, 24s, 18s	52 cts.
2/32s	53 cts.
3/8 Blood,	
2/32s	58 cts.
2/28s, 24s	58 cts.
1/2 Blood,	
2/22s, 28s	62 cts.

KERR THREAD CO.
—SPINNERS OF—
Fine Combed Sea Island **COP SINGLES**
All Numbers, 30s to 150s.
Fall River, Mass.

JAMES WHITESIDE,
Importer and Commission Agent,
Spun and Tussah Silk, Cotton Worsted, Mohair, Linen and Jute Yarns.
96 Spring St., NEW YORK.

GEORGE M. FLEMING,
Commission Merchant and Manufacturers' Agent for sale of
Wool, Worsted, Merino and Cotton } **Yarns**
35 Strawberry St., Philadelphia, Pa.

E. P. WHITMAN. D. A. HAGAN
WHITMAN & HAGAN,
YARNS. Mechants' Bank Building, PROVIDENCE, R. I.

ABEGG & RUSCH,
WORSTED YARNS
Dry Spun, Nos. 36s to 100s.
COTTON YARNS
Nos. 12s to 120s.
92 GRAND ST., NEW YORK.

WOOLEN YARNS.
All grades Woolen, Mixed and Merino yarns.
15 SETS CARDS.
EDWARD M. ROCKWELL,
LEOMINSTER, - MASS.

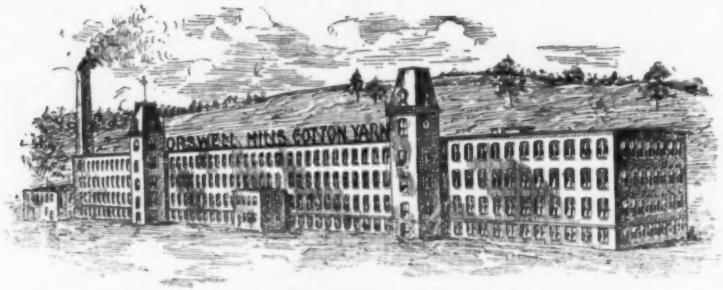
HENRY C. FOX.
Commission Merchant.
Dealer in odd and end lots of
COTTON, WOOLEN AND WORSTED YARNS,
No. 45 Strawberry St., Philadelphia.

WILSON H. BROWN & BRO.,
MANUFACTURERS OF
FANCY WOOLEN and MERINO
Knitting **YARNS** & Weaving.
GERMANTOWN, PA.
Salesroom, - 240 Chestnut St., Philadelphia.

CAPACITY, 50,000 Spindles.

ORSWELL MILLS

FITCHBURG MASS.



COMBED OR CARDED

COTTON YARNS

In Chains and Skeins, on Balls, Beams, Spools—single or twisted.

GREENE & DANIELS MFG. CO.,

Combed and Carded

Yarns, Threads, Twines and Chain Warps,

Furnished in any manner desired by the trade.

PAWTUCKET, R. I.

THE WILLIAM CLARK COMPANY,

WESTERLY, R. I.

Mills equipped with the latest and most improved machinery.

Combed Egyptian from No. 20s to 100s. Combed Sea Island from No. 40s to 200s.

Also 2, 3, 4, 5 ply and 6, 9 and 12 ply cable laid.

Hosiery Yarns on Cops, Tubes or in Skeins, Grey, Bleached or Dyed. (Fast Colors.

Cotton Yarns AND WARPS Of Every Description.

James F. White & Co.

COMMISSION MERCHANTS,

54 and 56 Worth St., NEW YORK.

228 Chestnut St., PHILADELPHIA.

BURLAPS all WIDTHS and WEIGHTS.

PLAIN AND FANCY PATTERN

Cotton Warps,

WHITE, MIXED AND COLORED.

For SATINETS, BLANKETS, ETC.

WHITTIER COTTON MILLS,

LOWELL, MASS.

Littlefield Manufacturing Co.

K. K. HOSIERY YARNS, COPS, CONES & SKEINS.

Threads for Spooling. Single and Double Yarns for Silk, Woolen or Cotton Goods.

PAWTUCKET, R. I.

BALE, STUART & CO.

SPUN SILK, COTTON AND WORSTED

YARNS.

31 George Street, MANCHESTER, ENG.

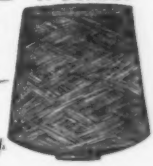
51 Green Street, NEW YORK.

W. WARREN THREAD WORKS.

Westfield Mass

Manufacturers of

Cotton Yarns and Polished Threads. Colored Yarns and Threads on Cones a specialty.



Samples sent on application. Correspondence solicited.

RICHARD A. BLYTHE,

Fine Nos. a Specialty, 20's to 150's. Carpet Yarns and Warps, 4's to 20's.

Cotton Warps and Yarns,

114 Chestnut St., Philadelphia, Penn.

FLEMING & CHAPIN,

YARNS, THREADS, TAPES, BRAIDS,

215 Church St., Crochet Lace Edging for Ribbed Underwear. Philadelphia, Pa.

GEO. FELL & SON,

LEATHER MANUFACTURERS,

Bolton, England.

SPECIALTY:

ROLLER SKINS

PERSIAN, FOR EGYPTIAN AND SEA ISLAND COTTON YARNS AND FINE COUNTS,
WELSH, FOR AMERICAN COTTON YARNS AND COARSE COUNTS.

REGISTERED TRADE MARK

Cable and Telegraphic Address,

"PELICAN BOLTON"

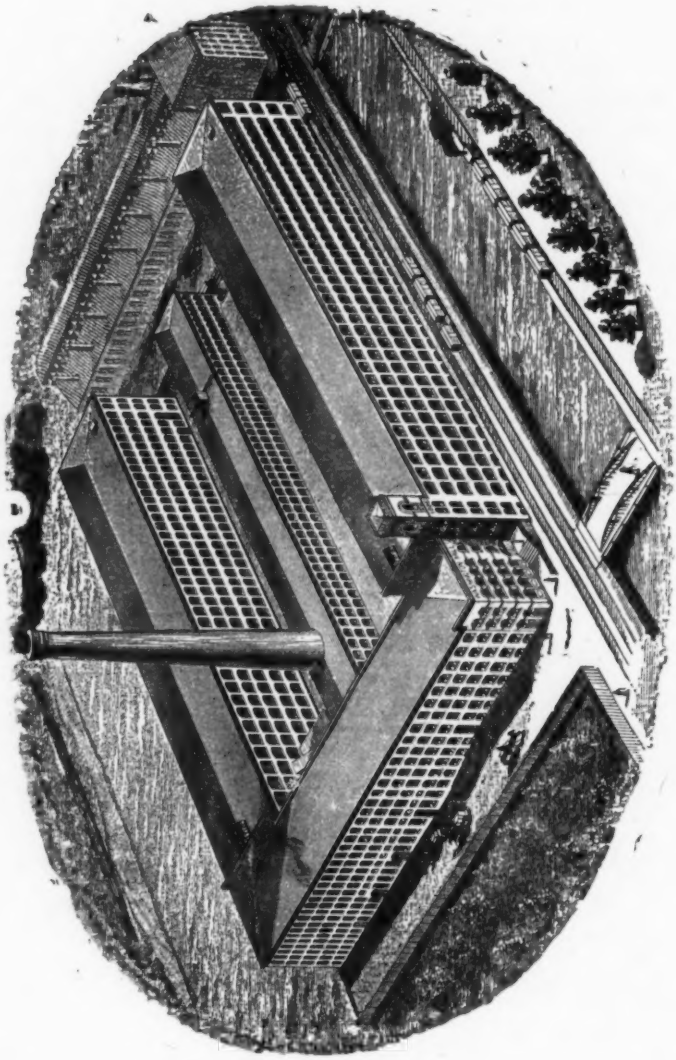
AI Code Used.

GEORGE FELL & SON
BOLTON
LANCASHIRE

REGISTERED TRADE MARK

Washington Mills Company,

LAWRENCE, MASS.



Spinners of Worsted Yarns.

HOWLAND CROFT, SONS & CO.

LINDEN WORSTED MILLS.

FINE WORSTED YARNS

OFFICE AND MILLS:
Broadway and Jefferson Ave.
CAMDEN, NEW JERSEY.

WEAVING and HOSIERY YARNS.

We Buy for Cash

WARPS, COPS, TWIST and SOFT SKEINS, Single, Double, 3-ply, 4-ply, etc.

COLORED YARNS for HOSIERY

on Cones, a Specialty.

Correspondence Solicited.

Winterbottom, Hyde & Co., 223 and 225 Chestnut Street PHILADELPHIA, PA.

MALCOLM MILLS CO.,

MANUFACTURERS OF

Novelty Yarns, Silk Noil Yarns, in Fast Colors AND White.

Mills, Frankford, Pa. Office, 216 CHESTNUT ST., PHILA.

The Philadelphia Yarn Market.

PHILADELPHIA, PA., Dec. 5, 1894.

The consumption of yarn in the past month has been large. Probably as much has been used in this market in other years, but prices have not advanced at all, and in some instances have declined with the staple. Spinners are hoping that the recent advance in cotton will help yarns and if it is permanent it will. Southern mills are very busy and our manufacturers here find that southern competition is very active. In fact all competition is so great that prices for manufactured goods cannot be raised to any extent. We quote:

WARPS.

20/1	12½ to 13 cts.
22s	13½ cts.
26s	13 to 13½ cts.
20/2	13½ to 14 cts.
12/2	12 cts.
30/2	18 to 18½ cts.
30/1 Southern	15½ to 16 cts.
13s Eastern	17 cts.

SKEIN.

26s filling	13 cts.
20/1 filling	12½ to 13 cts.
19s soft	13 to 13½ cts.
4s to 8s soft	11 to 11½ cts.
10s to 12s hard	11 cts.
10s to 12s soft	11½ to 12 cts.
14s hard	11½ to 12 cts.
14s soft	12½ cts.
14/2	11½ cts.
20/2	13½ to 14 cts.

GUERIN SPINNING CO.

JOS. GUERIN, Agent

Custom Spinning of Woolen and Merino Yarns of all descriptions (specially in fine numbers) spun according to the Belgian system.

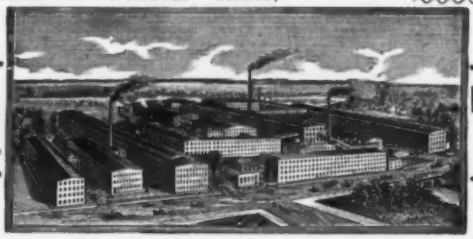
92 South Main St., - Woonsocket, R. I.

NATIONAL AND PROVIDENCE WORSTED MILLS,

CHAS. FLETCHER, President.

MANUFACTURERS OF WORSTED YARNS, SPUN ON THE

ENGLISH SYSTEM.



FRENCH SYSTEM.

Worsted Yarns in White, Mixed and Fancy Colors, on Bobbins, Dresser Spools and Skeins.

VALLEY STREET, PROVIDENCE, R I.

ALLEGHENY WORSTED MILLS,

Wolstenholme, Harrigan, & Clarke, MANFRS. OF

Worsted YARNS,

ALL NUMBERS SINGLE AND TWO-PLY, Sell Direct,

on Cop or in Skein, for Weaving and Knitting Purposes, in White, Natural & Fancy Mixes.

Office and Mills: Alleghney and Trenton Avenues, Phila., Pa.

CRANSTON WORSTED MILLS

CHARLES B. ROCKWELL, Treasurer, . . Manufacturers of

Fancy Yarns, Loops, Knots.
Spirals in Mohair and Worsted.

DYERS OF YARNS AND SLUBBING FOR THE TRADE.

BRISTOL, R. I.

CHAUTAUQUA WORSTED MILLS

Medium and Fine Grade Fancy, Weaving and Knitting Yarns.

GOODWILL & ASHWORTH, Jamestown, N. Y.

YARNS

SOLIS - - BOSTON.

179 Devonshire Street.

ANDREW J. SOLIS, Jr. & CO.

RIVER SPINNING COMPANY,

WOONSOCKET, R. I.

Belgian System WOOLEN and MERINO Yarns.

In any shade or quality suitable for making any class of Goods, domestic or foreign at prices to insure competition with imported goods of any description.

Selling Agents: JOHNSTON & FARIE. Apply to Andrew Adie, 132 South 3rd St., Philadelphia.

SOUTHERN CONES.

6s to 8s	12 to 13 cts.
10s	13 to 13½ cts.
12s	13½ to 14 cts.
16s	14 cts.
20s, 24s and 26s	16 to 16½ cts.

SOUTHERN COPS.

6s to 8s	11½ to 12 cts.
10s to 12s	12 cts.
16s	13½ cts.
10 to 12s shuttle	12½ cts.

MIXED COLORED CONES.

16s to 8s	15 to 15 ½cts.
0s to 12s	15½ to 16 cts.
16s	16½ to 17 cts.

SKEINS.

8/3 carpet	10¾ to 11 cts.
8/3 slack	11 to 11½ cts.
9/4 slack	11 to 11½ cts.
60-yd double reeled	6½ to 7 cts.
10s double reeled	11½ cts.
16/3 slack reeled	13 to 13½ cts.

EASTERN COPS.

26s shuttle	14½ cts.
40s shuttle	18½ to 19 cts.
10s to 12s hosiery	13½ to 14 cts.
14s	14 to 14½ cts.
16s	14 to 14½ cts.
20s	16 to 17 cts.
24s	17 to 17½ cts.
30s	19 to 20 cts.

Cones 1-2 ct. to 1 1-2 ct. above cops.

Skein 1-2 ct. above cops.

Egyptian cops 2c. to 3½c. above white.

Woolen and merino yarns in little demand, as customers hardly know what to do on woolen goods, in face of the new tariff regulations.

Worsted yarns in coarse numbers in fair demand, at very low prices.

The Cotton Market.

NEW YORK, Dec. 9, 1894.

The cotton market continues steady and in the buyers' favor. All through the month the bales continued to roll in from the farms to the interior markets and from thence to the ports. Spinners, both at home and abroad are purchasing steadily but apparently with no desire to take advantage whenever the quotations fall a few points.

The receipts and stocks are now considerably greater than they were at the end of November, 1893, while at the same time the mills are better stocked.

BARRY, THAYER & CO.,
Cotton Commission Merchants,
32 INDIA ST., - BOSTON.
Special attention given to orders from woolen mills for high grades and Peruvians.

CHAS. J. WEBB & CO.,
Foreign and Domestic
WOOL, HAIR and NOILS,
142, 144 & 152 to 156 N. Front St.,
PHILADELPHIA PA.

John B. Burnley,
MANUFACTURER OF
SHODDY.
WASTE, FLOCKS.
41 Strawberry Street, Philadelphia, Pa.

RAMIE - FIBRE.
MANUFACTURERS desiring to purchase RAW STOCK in large or small quantities, can be supplied.
RAMIE FIBRE CO.,
care R. H. Davis & Co.,
120 N. 7th St., Philadelphia, Pa.
Also Agents for the Celebrated Patent Metal Packing

PERSEVERANCE MILLS.
KROUT & FITE MAN'F'G COMPANY,
Manufacturers of Celebrated Boxed Tying For all Purposes.
TAPES
Silk and Cotton Narrow Fabrics.
Spool Tapes a Specialty.
Nos. 2632-40 MASCHER ST., PHILADELPHIA.

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MANUFACTURERS OF
TWINES, THREADS AND YARNS.
Jacquard Harness Twines of all kinds on hand and made to order.
12 SOUTH FIFTH STREET
Philadelphia.

FAST FANCY COLORS.
We make a specialty of dyeing Mode and Tan shade on hosiery and yarns, as also all other fancy shades. Colors absolutely fast. For particulars address
OAKDALE DYE WORKS,
913 W. York St., Philadelphia, Pa.

THE PHILADELPHIA
Turkey Red Dye Works.
KELLER & COOPER,
110-112 Putnam St., PHILADELPHIA. Dyers of Turkey Red for all Purposes.
A specialty of Turkey Red to stand Bleaching. In Skeins and Warps.

Cheney Brothers,

SILK MANUFACTURERS.

ALL KINDS OF

Knitting Silks, Ribbons AND Piece Silks

USED FOR TRIMMING KNIT GOODS.

TRAMS, ORGANZINES and SPUN SILKS, in the Hank, or on Spools or Cones, for Manufacturers' Use. Silks for Special Purposes Made to Order.

MILLS: South Manchester and Hartford, Conn.

SALESROOMS: 477, 479, and 481 Broome Street, NEW YORK.
79 Chauncey Street, BOSTON.
186 Franklin Street, CHICAGO.

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MANUFACTURERS

Spun Silk Yarns, Worsted Yarns,

FOR ALL PURPOSES.

Office 322 Chestnut Street, Philadelphia, Pa.

AUQUOIT SILK MANUF'G CO.

SILK YARNS

FOR THE HOSIERY, WEAVING AND KNITTING TRADE GENERALLY,

76 Chauncy Street, Boston, Mass.

WILLIAM RYLE & CO.,

DEALERS IN

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Foreign and domestic

SPUN SILK YARNS AND NOILS

Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., - NEW YORK.

ALFRED TAFF, Successor to H. T. Gaddum & Co.,

Importer of and Dealer in

SPUN SILK Yarns, Waste, Noils, etc.

69 MERCER STREET, - NEW YORK.

PHILIP WAMSLEY & CO.,

Spun Silk Yarns.

TWISTS OF ALL KINDS.

34 GREENE STREET, N. Y.

Pawtucket Dyeing & Bleaching Co.,

BLEACHERS AND DYERS OF

COTTON & COTTON YARNS, STOCKINET & JERSEY CLOTH.

OFFICE WITH BLODGETT & ORSWELL CO., Manufacturers of Glazed Yarns,

E. G. BLODGETT, Prest. **PAWTUCKET, R. I.** E. W ORSWELL, Treas

The continued improvement in business among the mills, which is as noted in Europe as in America, has had the effect of slightly strengthening the price of cotton and preventing any further decline, yet there hardly seems any danger of an advance in quotations. On the other hand the cost of cotton is so low that some manufacturers, we learn from news reports, have advanced wages.

While the crop now marketing is very much greater than the crop of last year, yet there seems to be less public discussion of the question of diversifying the products of the South. There is some discussion, in fact much, but the policy of diversifying the crops has come to be more of a settled thing and largely adopted and so has called for less attention from publicists.

The present large crop has been produced, allowing, of course, for the fact that climatic conditions were in every way favorable while the cotton was growing and harvesting, at the same time that much more attention was given to other crops than formerly. It is also noticeable that cotton growers have become more resigned to the lower prices. This is plain from the freedom with which they are sending the crop to market.

There are two causes for this satisfied feeling among the planters that seem to stand out prominently; one is this diversification of the crop; and another is the

THE WILMINGTON MILLS MFG. CO.
MANUFACTURERS OF JUTE GOODS,
CARPET FILLING AND RUG YARNS,
Wrapping, Baling, Tobacco, Hop and Wool Twines. Cords, Ropes, Packing and Specialties.
WILMINGTON, DEL.

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. E. J. CARRIGAN, Sec.
Established 1860.—Incorporated 1893.
THE S. BLAISDELL JR., CO.,
Egyptian COTTON Peruvian
American Long Staple a Specialty. and all American Southern points.
Shipments direct to mill form Egypt, Peru
CHICOPEE, MASS.

EGYPTIAN COTTON
HERMAN CAPELLE,
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NEW YORK.
H. BINDERNAGEL Alexandria, Egypt.

Boston Finishing Works
WILLIAMSTOWN, MASS.
BLEACHERS, DYERS AND FINISHERS
Of Pure Finish Shirtings, Sheetings, Canton Flannels and Filled Goods.
Also Silesias, Satteens, Corset Jeans, Cambrics, Sleeve Linings, Pocketings, Flanneletts, and all descriptions of Dyed Goods.
NAPPING A SPECIALTY.
Being equipped with the French and other Foreign and Domestic Napping Machines, we are prepared to give any kind of Nap required, including the French FlannelFinish.

PROVIDENCE DYE WORKS.

Dyers and Finishers,

. DIAMOND FAST BLACK .

FOR

COTTON YARNS, Suited for HOSIERY and WEAVING Cotton, Woolen and Worsted DRESS GOODS, Woolen and Worsted Mixed CASSIMERES and CLOAKINGS, also Woolen and Worsted Slubbing, COTTON YARN and WARP DYERS and BLEACHERS.

SAMPLE SKEIN FREE ON APPLICATION.

FIRTH & FOSTER BROS.,

OFFICES: **125 Cestnut St., Phila.** WORKS: **Taylor, Emerald and Adams St.,**
New York Office, 351 Canal St. **Kensington, Philadelphia, Pa.**

PERSEVERANCE DYEING COMPANY,

WOONSOCKET, R. I.,

DYERS OF ALL KINDS OF Woolen, Worsted and Cotton Goods

In all Shades.

FAST BLACK ON HOSIERY that will not smut or crock a specialty; an entirely new process.

Home Bleach and Dye Works,

PETER B. McMANUS, Proprietor.

Dyers and Bleachers of Cotton Yarns,

PAWTUCKET, R. I.

continued growth of cotton manufacturing in the South, "right on the ground," lessening the cost of marketing to the planter and the charges of the factors, in the vicinity of the mills.

Middling cotton, quoted in New York, 5 15-16; Liverpool, 3 3-16 d.

Egyptian cotton is firm and on all the better grades is inclined to advance. The latest mail advices show that the cultivators are not sending the staple to market with much freedom but are inclined to hold out for better prices. On grades below good, fair prices are easier, the quantity quite abundant, but neglected on the part of buyers.

—Messrs. Bale, Stuart & Co., 51 Greene St, New York City, announce that they have purchased the entire stock of imported gassed cotton yarns formerly carried by Messrs. James Chadwick & Bro., Ltd., who are now retiring from that branch of the business. They will handle all unexecuted orders of that firm in this line, and keep in stock yarns from 30s to 220s, also a full line of harness twines. We understand that the stock on hand, which they have taken over, amounts to upwards of 25,000 pounds. Messrs. Bale, Stuart & Co.'s cotton yarn department is now under the management of Mr. Harry Manley, lately connected with James Chadwick & Bro., Ltd. Their orders for next spring are most satisfactory. Besides their cotton yarn business, they do a large business in spun silk, and in this line quite remarkable activity has been developed of late. The Vega Silk Co., of Paterson, which this firm also controls, is likewise finding an active demand for its product, and is running full time. Fifteen new looms have lately been added to the plant, which makes a full line of lining, dress and tie silks. Mr. Gerald Donaldson is in charge of this department. It is a pleasure to note that this representative concern finds prospects for next spring's trade very re-assuring.

—The Harrison Yarn & Dyeing Co., Pawtucket, R. I., have commenced to dye worsted yarns within the last two months.

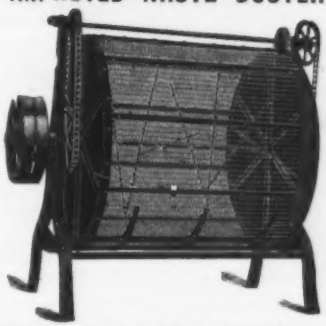
Upholstery.

The feature in domestic upholstery, to day, is the tendency of manufacturers to strengthen their lines in piece goods, coverings, draperies and covers. Chenilles receive attention from such mills, as are unavoidably equipped for them, but the old time spirit of their preparation is dead. They may, for several seasons continue to appear, but mainly as the necessary adjunct to a large mill's production. Much annoyance, we learn, is experienced by our mills, on account of the many low priced broad weaves, which are coming from England, Scotland and Germany, and which, to a painful degree, resemble our expensive stuffs.

The season approaching is provided for, with complete lines, and up to the time of our visit to the mills, upholstery looms were in fairly full operation. Lace curtain manufacturers report steady prices, and all of the leading mills were running nearly full. Fourteen new lace machines will shortly land in Philadelphia to supplement a plant in that city.

—We direct attention to the card, in our Power Department, of Alexander Brothers, Philadelphia, manufacturers of belting and belt supplies. Established in 1867, they have long been identified with this exclusive line, and, as producers of reliable belting, maintain a foremost position. The firm supply belting to all sections of the country, and do a specially large business with the mills of New England and the Middle States. Mr. Homer Foote is their New England agent, at Springfield, Mass. On a recent visit to Alexander Brothers' Works we were shown a belt of 3 ply thickness, 178 feet long, 51 inches wide, and weighing 2600 pounds. It was being made for the Nixon Paper Mills, Manayunk, Pa.

IMPROVED WASTE DUSTER



For Cleaning Wool Waste. Superior to any now in use. Manufactured by the Stillman-Rich Machine Co., Westerly, R. I. Send for circular.

Established 1810.

ALLISON BROS., Manufacturers of

Textile Soaps.

SILK, WOOLEN and COTTON. FACTORY: Middletown, Conn.

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FINE COMMERCIAL PRINTERS.

Photo Engraving in all its Branches.

Specialists in fine Machinery and general Wood Engraving, Portraits, Buildings, etc. Artistic designs in Letter and Bill Heads, Business Cards, Display Lettering for advertising purposes, etc. Best work. Lowest prices. Electrotyping at lowest rates.

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VERMONT SPOOL & BOBBIN CO.

Burlington, Vt.

12,000 Yds.

Mills at Essex Junction, Vt.

Latest and Best Rub Motion FOR WOOL CARDS

IN THE WORLD. Patented July 24, 1894.

It has a positive Quarter Motion which can be run at any speed desired, with no vibration whatever, and requires no bracing. It assures, positively, evener, better and stronger yarn to the manufacturer.

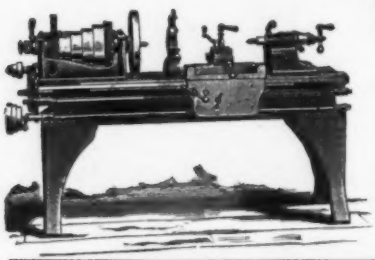
MANUFACTURERS, SUPERINTENDENTS AND CARDERS ARE INVITED TO SEE IT IN OPERATION AT

BESWICK & KAY'S FAIRMOUNT SPINNING MILLS, 25th & Callowhill Sts. PHILADELPHIA.

(Correspondence solicited and all inquiries cheerfully answered.)

P. BLAISDELL & CO.,

Manufacturers of



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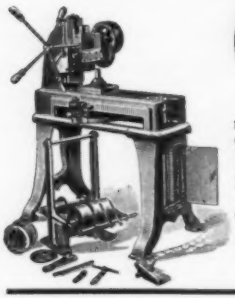
Blaisdell's Patent Upright Drills,
with Quick Return Motion.

ENGINE LATHES, PLANERS,
Boring Mills, Gear Cutters, and Hand Lathes

WORCESTER, MASS.

MODERATE PRICED



Gear Cutting Machine.

Especially adapted for use in Repair Shops. Now in use in nearly **ONE HUNDRED** representative mills, including **Twelve** in Fall River, Mass. On application, we shall be glad to submit full particulars, prices, and photographs of latest improvements. Send for our Sheet of References.

THE D. E. WHITON MACHINE CO.,

19 Oak Street, New London, Conn.

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Late of Hood & Townsend, Established 1885.

Manufacturer of **MACHINE WOOL COMBS,**

Hackles, Gills, Fallers and Porcupines. Tentering Pin Plates. Also Cotton Combs neatly re needled. Dealer in the Best English and American Cast Steel Pins and Comber Needles.

All Work Guaranteed. **MANCHESTER, CONN.**

ESTABLISHED 1865.

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Mill Bandings OF ALL DESCRIPTIONS,

AND DEALERS IN ALL KINDS OF **Mill Supplies.**

COOK'S LOOM FORKS.

71 and 73 Pleasant Street, - Fall River.

MILL NEWS.

Cotton.

New Mills.

—ALABAMA, Mobile. The Commercial Club, Mr. West, secretary, is in correspondence with manufacturers who wish to locate a $100,000 plant for the manufacture of cordage, twines and warps here.

—FLORIDA, Bronson. Messrs. Epperson, Lummis & Co. are interested in the organization of a stock company to erect a cotton mill at this place.

—MASSACHUSETTS, Lowell. Rumors have it that a new cotton yarn mill is being projected at this place by local capitalists, but we have as yet been unable to ascertain any names.

—*MISSOURI, St. Louis. Concerning the new mills which we in August reported Jerome Hill was interested in, we now have further reports that Mr. Hill has visited Boston, and has obtained the required capital to start the work of construction. The cost of the equipment will be $2,000,000, it is said.

—*NORTH CAROLINA, Stubbs. We are further informed concerning the recently reported cotton mill which is being built at this place, that the name of the company will be the Buffalo Manufacturing Company.

—*NORTH CAROLINA, Weldon. The new cotton mill, several times reported, at Roanoke Rapids, will be a 24,000 spindle mill, one half of which will be erected at once. Lockwood, Greene & Co., of Boston, are the mill architects and engineers. They have not as yet completed their plans. W. M. Habliston, 20 N. Sycamore St., Petersburg, Va., is the prime mover of this enterprise. The 24-set knitting mill, also reported, is in charge of W. G. Maxwell, of the firm of Chanler, Maxwell & Philip. 120 Broadway, New York.

—OHIO, Cincinnati. We have the report that a cotton factory, for the manufacture of cotton bats, comforters, etc., has been started at this place by the P. R. Mitchell Co.

—*SOUTH CAROLINA, Central. Concerning the new mill which we reported James F. Lay was interested in, we are informed by Mr. Lay that the establishment of the mill is an assured fact, and that a company is now being organized for the manufacture of yarns and sheetings, which will be capitalized at $50,000. The mill will contain 10,000 spindles.

—SOUTH CAROLINA, Greenville. The machinery and fixtures of the Camperdown Cotton Mills has been sold by James L. Orr, the receiver, to Messrs. O. H. Sampson & Co. of Boston who held an $85,000 mortgage on the property. Messrs. Sampson have purchased a site, and have commenced work for the erection of a building, which will cost $50,000, to accommodate the above machinery.

—SOUTH CAROLINA, Greenville. There is a project on foot, at this place, to establish a $200,000 cotton mill. Dr. J. H. Maxwell and F. W. Poe are the principal projectors.

—SOUTH CAROLINA, Greenville. We are informed that a new company to erect a $100,000 cotton mill is being started at this place. Mr. H. W. Cely and Mr. J. H. Heywood are interested. This we believe has no connection with the other project reported for this place.

—*TENNESSEE, Chattanooga. We have further reports concerning the new cotton mill, which is being projected at this place, that the name of the concern is the Hamilton Cotton Mills, and that they have petitioned for a charter. H. C. Eager, John C. Griffiss, J. C. Smartt, J. M. Johnson and A. M. Womble, as previously reported, are interested. The company will manufacture thread, yarn, twine, rope, cordage and cloth.

—*TEXAS, Dallas. There is considerable more talk of erecting a new cotton yarn mill at this place, and we have a report that a Massachusetts manufacturer has donated ten acres in North Dallas, for a site, and that an Englishman offers to take $4000 worth of capital stock. Mr. Philip Sanger, president of the Board of Trade, is interested.

—TEXAS, San Angelo. George C. Webb is interested in a project for the purpose of erecting a cotton and woolen mill at this place.

Enlargements and Improvements.

—ALABAMA, Florence. The Cherry Cotton Mill have recently completed a new dye house 50x90 feet, and are now installing machinery in same.

—ALABAMA, Huntsville. A new department for the manufacture of ball twine, has recently been added to the plant of the West Huntsville Cotton Mill Co.

—GEORGIA, Cedartown. The mills of the Cedartown Spinning Company, which have been idle for some time, are, it is reported, to be put in operation by Messrs. Charles Roberts, of Chester, Pa., and Miller A. Wright, of this city, who, with the Cedartown company, will constitute the board of management. The new managers propose to enlarge the capacity of the plant, and erect new buildings, which will be equipped with looms for the manufacture of cloth, and a department for manufacture of pants will also be added.

—*MASSACHUSETTS, Easthampton. George S. Colton, whom we reported in September as building an addition, informs us that the production in same will be begun by February, 1895, and that ten looms will be added, in the manufacture of webs. The addition will increase the capacity 50 per cent.

—MASSACHUSETTS, New Bedford. Reports have it that the Wamsutta Mill company are about to add carding machinery to their Mill No. 5.

—MASSACHUSETTS, Ware. An addition to the dye house, 40x100 feet, has just been completed by the Otis Co.

—MASSACHUSETTS, Worcester. The Ruddy Thread Co. have leased a portion of the Iver Johnson building, which they will use for storage purposes, and will fill the space gained thereby with new machinery for the manufacture of cotton thread.

—NEW JERSEY, Millville. The Millville Manufacturing Company are adding new spinning machinery to their plant.

—NEW YORK, New York. The Brighton Mills, on West 23d St., are having set up 6 new wide looms for crochet quilt blankets and similar goods, and are putting in new finishing and auxiliary machinery. The looms are their own construction. They now have 60 two-web looms, equal to 120 ordinary looms.

—NORTH CAROLINA, Graham. We are informed that the Saxapahaw Cotton Mills are putting in 69 new looms.

—*NORTH CAROLINA, Leaksville. The Leaksville Cotton Mills, W. R. Walker, treasurer, inform us in relation to the addition which we reported they were building, that they are at present equipped with 120 new looms, and that they expect to keep adding until the number reaches 350, which is the capcity of the building.

—*NORTH CAROLINA. Pineville. The Dover Cotton Mill Co., who purchased the Pineville Cotton Mill, have the addition which they are making to the plant nearly completed and the machinery is being put in.

—RHODE ISLAND, Hope. Plans for the erection of an addition to the Hope Mills are being prepared.

—RHODE ISLAND, Providence. The Barstow Thread Co. are building a new mill, three stories, 68x245 feet, and of brick. A. C J. Larned has the contract for the erection.

—RHODE ISLAND. Slatersville. New carding machinery is being placed in the mill of J. W. Slater Mfg. Co.

THE TORRANCE MANUFACTURING CO.,
Sole Makers of the TORRANCE PATENT.
Self-Acting BALLING MACHINE,
18 & 20 Davis St., E. Newark, N. J.

The attention of Woolen Manufacturers is invited to these Machines as convenient labor-saving appliances. The machine can be adjusted to make any size balls to suit lots, and the creel is constructed to carry twice the number of spools used by the old system. Send for circular.

THE MILLER MANUFACTURING CO.
OF PHILADELPHIA,
Manufacturers of
MILLER'S IMPROVED
Open and Spring Eye Lingoes,
CARD WIRES AND SPECIALTIES IN WIRE WORK,
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Established 1844.
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(WM. J. BUCKLEY)
GUN MILL, PATTERSON, N. J.
Manufacturer of all kinds of
SPINDLES, FLYERS, RINGS, TUBES, CAPS, &C.
FOR
Cotton, Silk, Flax, Woolen and Worsted
MACHINERY.
Roving Spindles and Flyers a Specialty.
Light Forgings. Repairing of all kinds.

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Sole Manufacturer in United States of
BRASS AND STEEL MAILS
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DESIGNS. Expert Service.

I am prepared to furnish to manufacturers, advice, opinions, or suggestions as to styles and patterns of goods. If desired I will furnish details of weave construction, stock to be used, and finish required, of any pattern or sample submitted to me. I am in constant touch with the New York market, and have the necessary technical knowledge. I am not simply a picker-out of patterns, but will do that work if desired. My terms are not unreasonable. All communiations confidential. Address **DESIGNER**, P. O. Box, 222 Brooklyn N. Y.

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For Cotton and Gingham Mills, Bleacheries, Print Works, Etc.
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PATENTS

CROSBY & GREGORY,

34 SCHOOL STREET.

Telephone 3593, Boston. **Office Established 1854.** Cable address Aniline.

George W. Gregory, in November, 1874, resigned his position as Principal Examiner U. S. Patent Office to enter the firm.

Patents secured in the United States and all other countries, Reissues obtained. Interferences conducted. Suits brought and defended for infringement, and searches made as to the validity of patents. Prepared to give special and expert attention to cases involving knowledge of cotton, wool, leather and metal working machinery, including boots and shoes and electrical, chemical and metallurgical inventions and steam engineering. Correspondence solicited. No charge for preliminary advice. Personal consultation best when possible.

HOPEDALE, Mass., January 21, 1893.

Mr. George W. Gregory, of Crosby and Gregory, has taken out for us since January, 1875, more than two hundred patents. GEO. DRAPER & SONS.

Telephone 3490. Cable Address "Yelsorc."

CHARLES F. BROWN, Mechanical Expert.

WILLIAM QUINBY, Late Exr. U. S. Patent Office. Attorney & Counselor-at-Law.

Wright, Brown & Quinby.

Exchange Building, 53 State Street, Boston.

Patent Causes, Patents, Copyrights, Trademarks.

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PATENTS.

ARTHUR W. CROSSLEY,

(late examiner in Textile Department in U. S. Patent Office), solicitor of Patents,

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Nearly 20 years' experience; correspondents in all the principal cities of Europe and Australia; two leading patent lawyers of New England consulting counsel; connected by telephone; good patents and quick patents; preliminary consultation **FREE.**

Textile, electrical and mill machinery patents a specialty.

Refer to publishers of the Textile World, also to numerous inventors in various parts of the country. **Correspondence Solicited.**

PATENTS

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A thorough practical and scientific knowledge of the useful arts, and extensive experience, enables us to be of great assistance to manufacturers and inventors in perfecting useful improvements.

Researches made in American and foreign works to determine the validity and utility of inventions. Reports and arguments furnished in patent litigation.

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EDWIN PLANTA, SOLICITOR OF PATENTS

American and Foreign.

Office, No. 27 School St., Room 30. BOSTON

List of Textile Patents Issued November 6, 13, 20, 1894.

Specifications and drawings furnished for fifteen cents each. Address "Patents," P. O. Box 222, Brooklyn, N. Y.

Automatic Circular Knitting Machine. 528,864. B. M. Denney, Camden, N. J.

Automatic Knitting Machine. 529,362. Norristown, Pa.

Automatic Circular Knitting Machine. 529,509. W. H. Stewart, Franklin, N. H.

Automatic Stitch Regulating Mechanism for knitting machines. 529,558. W. H. Stewart, Franklin, N. H.

Bleaching. 529,589. H. Thies, Laaken, and E. Herzig, Mulhouse, Germany.

Calendering Machine. 528,920. R. Butterworth, Somerville, Mass.

Cotton Band Cutter. 529,258. L. S. Gardner, G. Cook, and A. O. Tannenberg, New Orleans, La.

Dye—Manufacture of Yellow and Orange. 528,965. F. Muhlert, Pele Tyrolka, near Prague, Austria, Hungary.

Dyeing Aniline Black. 529,498. F. V. Kallab, Offenbach, Germany.

Dyeing Machine. 528,584. M. Bacon, Philadelphia, Pa.

Dyeing Machine. 529,539. L. Weldon, Amsterdam, N. Y.

Drying Cylinder for Textile Machinery. 529,038. W. C. Mackinney, Philadelphia, Pa., assignor to H. W. Butterworth & Sons Co., same place.

Drying Frame. 528,991. A. C. Sharpell, New York, N. Y.

Feed Regulating Device for Machine for opening and preparing cotton. 529,567. J. C. Potter, Pawtucket, R. I.

Knitting Machine. 528,810. L. E. Salisbury, Providence, R. I.

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The Ribbers to range from 3 to 4 1-2 in.
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HOSIERY PRESSES.
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Loom Shuttle Box Operating Mechanism. 528,758. H. Bardsley, South Hadley Falls, assignor to Knowles Loom Works, Worcester, Mass.

Loom Shuttle Box Operating Mechanism. 529,163. L. H. Downing, North Andover, Mass.

Loom Shuttle Tension Device. 528,895. J. Sweeney, Pottstown, and G. Stroble, Philadelphia, Pa., assignors of one-third to J. W. Lauderbach, Philadelphia, Pa.

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Moquette Fabric. 529,635. E. Tymeson, Yonkers, N. Y., assignor to W. B. Smith.

Moquette Carpet Loom. 529,636. E. Tymeson, Yonkers, N. Y., assignor to W. B. Smith, same place.

Pile Fabric Loom. { 529,151 / 529,150 } H. Wyman, Worcester, and G. Poole, Lowell, Mass., assignors to Mass. Mohair Plush Co., of Boston, and Crompton Loom Works, of Worcester, Mass.

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Spindle and Bolster. 528,936. F. M. Garcelon, Lewiston, Maine.

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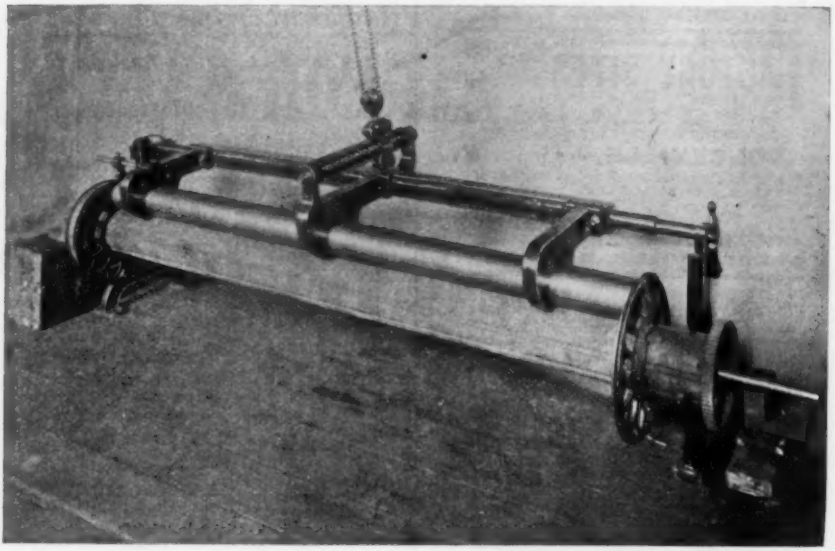

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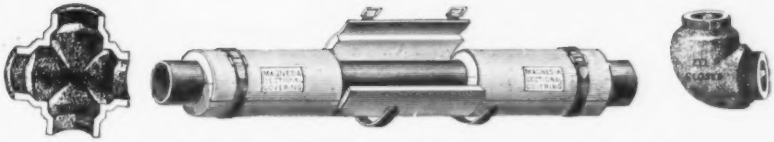

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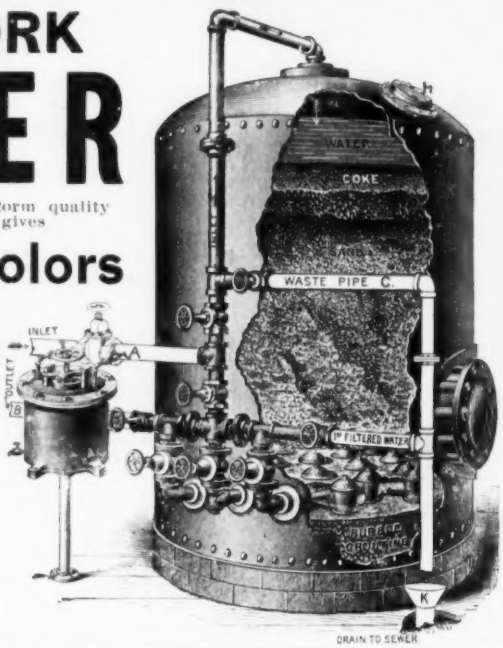

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